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Standards of Railway Pay

COMPARISONS between the rates of railway pay in this and Continental countries are of little value, partly because of exchange rates, which do not give a true picture, and partly because the cost of living varies greatly in different countries; it is considerably higher, for instance, in Switzerland, and in Germany real wages generally are estimated to be well below parity with those in Britain. With railway wages moreover there are additional benefits such as travel concessions which must be taken into account. In last Sunday's *Observer* it was stated that the highest basic pay for a top link driver on British Railways at £8 18s. 6d. a week, with two weeks' paid holiday and no pension—though a pension scheme is under discussion—compares unfavourably even after additions of such extras as mileage allowance and Sunday work, with rates in Belgium, France, Germany, and Switzerland. Various figures were given for drivers' wages in those countries. A German driver, for instance, with 10 years' service, and married, was said to receive some £550-£600 a year basic pay, with 24 days' paid holiday and pension at 60 equal to three-quarters of his working pay; the pay of a Swiss driver was said to be over £1,000 a year. If railway wages rates are to be compared, it should be with work making comparable demands on skill, judgment, and energy in other industries in the same country. After allowances have been made for travel facilities and other benefits the rates for footplate staff and some other skilled wage grades compare unfavourably with those for roughly comparable employment in other industries with more attractive conditions of work. These industries moreover can now in many cases offer the security which formerly only the railways and a few other occupations could offer. The main consideration, however, in railway wages in Britain is the fact that British Railways have to pay their way—unlike those Continental systems on which deficits now seem accepted as a matter of course. In Britain, increases in railway pay must depend on the ability of the railways to foot the bill, just as any serious deterioration in the financial situation would lead ultimately to unemployment among railway staff. British railwaymen have an opportunity of helping themselves by increasing the efficiency of the railways, a matter which is being discussed between their union representatives and the British Transport Commission.

More Diesel Shunters for British Railways

IN December, 1951, British Railways announced a plan to provide 573 diesel shunting locomotives during the five years 1953-57. As part of this programme, orders have been placed with the English Electric Co. Ltd., for equipment for 170 locomotives to be built in British Railways workshops. These engines will be of the new standard design, of the 0-6-0 type and developing 350 h.p. The programme was the result of a special investigation to ascertain what economies could be gained and how efficiency could be increased in the larger yards and depots, and it was stated that the 573 diesels would enable 635 steam locomotives to be withdrawn. The design allows different makes of engine, traction motors and main generators to be installed, and in previous contracts the supply of equipment has been shared by several manufacturers. The total of 573 provides for 432 diesel-electrics of this type and also for 141 diesel-mechanical units of 150 h.p. (0-4-0 type) and 200 h.p. (0-6-0 type).

The New Woodhead Tunnel

ONE of the greatest works carried out on British Railways since nationalisation and ranking as one of the railway civil engineering feats of the century, is the new tunnel under the Pennines between Woodhead and Dunford Bridge on the Manchester-Sheffield main line, opened yesterday by Mr. Alan Lennox-Boyd, Minister of Transport & Civil Aviation. The original twin single-line tunnels, 3 miles 13 yd. long, the first opened in December, 1845, became costly and uneconomic to maintain and the L.N.E.R. decided in 1947 to construct a new double-track bore parallel to the old tunnels; Balfour Beatty & Co. Ltd., began preliminary work in 1949. Associated with the project is the electrification of the Manchester-Sheffield-Wath lines, of which the second stage will be inaugurated on June 14, when every train between Manchester and Penistone will be electrically hauled. The line rises through the tunnel from east to west at about 1 in 200, the culmination of a 20-mile climb from the west, mostly at a steeper inclination, a toilsome ascent for eastbound trains whose difficulties electric haulage will greatly minimise.

Appeal for Home Orders for Locomotive Builders

THE Scottish Board for Industry has asked the Secretary of State for Scotland to draw the attention of the Government to prospective redundancy of workers in the locomotive building industry in Glasgow as a result of foreign competition. Mr. Charles Murdoch, Chairman of the Board, disclosing this in Glasgow last week, said that the Government had been asked to see whether home orders could be given to the industry to compensate for the loss of export business. The locomotive industry in this country, said Mr. Murdoch, is being handicapped by unstable costs, which make it hard for manufacturers to quote firm prices, and he pointed out that Germany and

Austrian locomotive manufacturers are helped by factors such as their ability to obtain steel at 12 per cent below the market rates and the hidden subsidies known to be received by the steel industry.

Paddington Centenary Commemorated

THE centenary of Paddington Station was commemorated last Saturday at a ceremony on No. 1 Platform; a short account is given on another page. A plaque of Isambard Kingdom Brunel was unveiled by a distinguished successor, Mr. A. S. Quartermaine, a former Chief Engineer of the Great Western Railway and of the Western Region, who, as Mr. K. W. C. Grand, Chief Regional Manager, remarked in introducing him, "has so eminently carried on the great traditions of Brunel." The station, immortalised by Frith's famous painting, was the result of collaboration between Brunel and the architect Digby Wyatt and is a unique work of art, with a rare unity of architectural treatment. So well was it planned and built that no considerable additions became necessary until 1909, and no major repairs have had to be carried out other than replacement of the original cast-iron columns and some of the glass. Since Queen Victoria first travelled by train from the old Bishops Road station in 1842, Paddington has seen the departure or arrival of a number of Royal specials, and four Royal funeral trains. The many who, like Mr. Quartermaine, have an affection for Paddington will wish it well on having reached its hundredth birthday and hope that it will long escape the attentions of town planners.

Progress on Indian Railways

THE impressions of a British officer only recently returned to this country after many years' service on Indian railways were heard on Monday night at the annual dinner of the Indian State Railways, of which an account is given on another page. Mr. W. G. Latham referred to the rehabilitation of the railways in the Republic of India, which is now well under way, and to the propects for increasing traffic handling capacity, such as the new port at Kandla, which will relieve the other ports upon which increased traffic since Partition has placed a strain, and the bridge to supersede the Ganges wagon ferry at Mokameh. He mentioned also the Indian Five-Year Plan, in which railways have an important part, and the many improvements in passenger train and station arrangements, not least for the third-class passenger. One of the most satisfactory aspects mentioned by Mr. Latham is the absence of labour trouble on the Indian railways and the recognition by Indian railwaymen that the Government of the Republic is a model employer—as indeed most of the company and State railways had been for many years before Partition.

Some Points in Indian Railway Policy

ONE or two welcome and essentially reasonable details in the railway policy of the Government of India were recently mentioned by Mr. F. C. Badhwar, Chairman of the Railway Board. In refutation of the obviously-unfair allegation that the railways patronised manufacturers in India with foreign names in preference to Indian concerns, he pointed out that over 90 per cent of the labour employed by those foreign firms was Indian, and that the shares of most companies with British names were largely Indian-owned. So long as any article was manufactured in India by Indian workmen and, whenever possible with Indian materials, the identity of the particular agency making it was unimportant. Moreover, provided the quality was good, it did not matter, he added, whether a component was made in a railway or in a private firm's workshops. Seeing that about £400 millions of foreign capital were believed to be invested in India already, and that efforts were being made to obtain more foreign capital to expedite the development of the country, it was illogical to expect the railways suddenly to withdraw their custom from well-established firms of high repute that had supplied them with quality goods for many years, solely because they had foreign names.

Lower Wagon-Lits Charges in France

THE charges for berths in sleeping cars of the Cie. Internationale des Wagons-Lits working in and through France were cut by some 30 per cent from last Monday. At the same time the supplements for the Wagons-Lits Company's Pullman cars running in the "Sud Express" between Paris and the Spanish frontier and in the "Mistral" between Paris and the Riviera were similarly reduced. The reductions apply to journeys of more than 400 miles. For example, the total cost of a second class berth from Calais to the French Riviera is reduced from £6 14s. 8d., including tips and booking fee, to £4 8s. 10d., and that of a first class berth from £10 3s. 2d. to £6 14s. 5d. The incidence of air and motor-coach competition and the growth of private motoring doubtless have been major factors in the decision to lower charges, which seem high compared with British Railways sleeping car supplements and those charged by the Pullman Car Co. Ltd. for use of its cars in this country, though no exact comparison is possible. The matter is largely one for the railway administrations: a high ordinary fare can be a large part of the total cost of railway travel which the intending passenger finds prohibitive.

Western Australian Main-Line Diesels

A NEW phase in railway working in Western Australia began on May 5, when a special passenger train, hauled by two of the new "X" class diesel-electric locomotives of 1,105 h.p. arrived at Kalgoorlie from Perth. These locomotives, one of which was illustrated in our issue of May 21, are being built by Metropolitan-Vickers Electrical Co. Ltd.; Crossley engines are fitted. The order, which was for 48 locomotives, was at the time the largest single order for diesel locomotives obtained by a British firm. The inaugural special, carrying the Minister for Railways, Mr. H. H. Styants, and other guests, performed the 380-mile journey in 12 hr. 40 min., which is some four hours less than the normal time for steam trains. The first locomotive was named *Yalagona* at a ceremony performed by the Premier of Western Australia, Mr. A. R. G. Hawke, and Mrs. Hawke. The locomotives, of which four had been delivered at the end of May, are to be used on the Perth-Kalgoorlie run, where eight units will be required to haul passenger and fast perishable trains, and in the dry areas north of Northam and east of Kalgoorlie, where scarcity of water and long distance from coal sources make the diesel locomotive an ideal power unit.

Automatic Train Control on the Pennsylvania

SOME years ago the Pennsylvania Railroad, which always had had a progressive signalling policy, decided with official permission, to apply to its main routes a four-aspect cab-signal system, repeating continuously in front of both driver and fireman the aspects of the line-side position-light automatic signals, the standard for all new work. This type of signal had been adopted for the Philadelphia suburban electrification in 1915 to obtain especially clear indications among the obstructions caused by the overhead wires and standards. With some small modifications it proved quite satisfactory and the earlier 3-position semaphore system gradually gave way to it. There was no brake application with the cab signalling, but whenever an indication changed to one more restrictive a whistle sounded until silenced by the driver. It was thought that so complete an arrangement would practically rule out accidents due to disregard of signals but, as an article in this issue explains, some still occurred where drivers failed to conform to the restrictions imposed by the signal aspects and then ran into an obstruction. More recently, therefore, automatic speed control has been

installed, obliging the driver to reduce speed correctly, failing which an absolute brake application will follow and the train be stopped.

The Modern Footbridge

FOOT overbridges with spans of 100 ft. and upwards are not so common a feature of British Railways as might be expected from the many multi-track yards; but where they do occur there is wide scope for ingenuity in their design. In the recent renewal of the two 105-ft. spans east of Cardiff General Station, the Western Region engineers have taken the opportunity to provide welded mild-steel angle parabolic arch ribs about 12 ft. deep at the centre, as stiffening trusses for the deck tie beams. They replace Warren-truss spans of equal length, but though the new footbridge is designed to carry the same loading, 100 lb. per sq. ft., the weight of its steelwork, 12 tons, is 40 per cent less than that of the old structure, thanks to improved design and arc welding. The bridge is described elsewhere in this issue. To reduce work at site to a minimum, all field-joints are bolted, and the r.c. deck was all precast except for two short lengths opposite the field-joints in the stiffened deck tie-beams in each span.

Transport Tribunal Report for 1953

THE annual report for 1953 of the Transport Tribunal to the Minister of Transport & Civil Aviation draws attention to the considerable changes in its jurisdiction brought about by sections 20 to 24 of the Transport Act, 1953. No proceedings were, however, instituted under any of those provisions in 1953. Under the Railways Act, 1921, there were 12 applications. Of these, four referred to the classification of merchandise and the remaining eight to new exceptional rates and reductions of exceptional rates. There were a large number of applications under the Road & Rail Traffic Act, 1933, for the approval of agreed charges. At the beginning of 1953 73 applications were pending and during the year 582 new applications were lodged. This compared with 1,327 during 1952. All of the applications were made by the Railway Executive or by the Railway Executive and the London Transport Executive acting in conjunction, and none was opposed. The Tribunal made 447 orders approving agreed charges, of which 352 related to traffic by merchandise train and 95 to traffic by passenger train. In 56 cases the charges applied to traffic carried by both the Road Haulage Executive and by rail. The majority of the agreements were renewals, with modifications, of charges already approved, but there were 71 new agreements. As in the previous year, a large number of the applications were designed to reduce the clerical work of the parties concerned.

The passing of the Transport Act, 1953, which came into force on May 6 of that year, resulted in a marked decrease in the number of applications for agreed charges, since under section 21 (1) (*c*) of that Act, section 37 of the Road & Rail Traffic Act, 1933, ceased to apply to charges made by the British Transport Commission. Some 200 applications which were pending on May 6 were, therefore, not pressed.

At the end of 1952, 18 appeals from decisions of Licensing Authorities for goods vehicles under section 15 of the Road & Rail Traffic Act, 1933, were pending, and during the year under review a further 48 appeals were lodged. Of these 11 were not prosecuted. 44 appeals were heard and in 22 cases were allowed. One appeal was dismissed for want of jurisdiction. Of the appeals allowed, five were remitted to the Licensing Authority for further hearing.

The British Transport Commission submitted for confirmation, on January 5, the British Transport Commission (Passenger) Charges Scheme, 1953. This was submitted under section 78 of the Transport Act, 1947. The Tribunal held a public inquiry, lasting 23 days, and the scheme was confirmed, with certain alterations, by an Order dated July 20. The Tribunal set out the objects of the scheme and certain conclusions on the principal issues involved in a memorandum which was issued, with the scheme and confirming order, by the Stationery Office. Other items dealt with in 1953 included approval of part of an agreement between the Railway Executive and the French National Railways relating to the joint steamship service between Newhaven and Dieppe.

Rail Stresses

THE very complex subject of stresses produced in rails, particularly in the heads, by locomotive loadings always warrants any experimental measurements under actual track conditions, especially when theoretical figures can be checked in this manner. In the earlier part of 1953, the Swiss Federal Railways recorded measurements on the outer rail of a curve which showed tensile stresses in certain parts of the rail head. The measurements were made at places where lateral load effects were considered to be small and thus gave values due mainly to direct vertical loads. The recorded tensile stresses in the head appear to have been attributed to secondary deflection of the rail head due to compression of the web. The question naturally arises whether measurements of tensile stresses due to this particular effect could not have been made with greater accuracy on straight track, since it would seem impossible to eradicate altogether the effect of lateral loads and eccentric vertical loads on sharp curves.

In 1932, Professor S. Timoshenko and Mr. B. F. Langer, in a paper before the American Society of Mechanical Engineers, discussed the bending of the rail head alone, on the elastic foundation formed by the web produced by vertical or lateral loads. A theoretical method for calculating secondary tensile stresses in the rail head due to the elastic compression of the web by vertical loads has also been put forward by the Swiss Federal Railways.

The existence of tensile stresses in rail heads has, of course, been well known for many years; they occur under vertical loading, on straight or curved track, at the short middle lengths between successive wheels. The most serious cause of tensile stresses, however, is the net lateral load producing a twisting moment on the outer rail of a curve, generally due to the flanges of the leading bogie and leading coupled wheels. Messrs. Gelson and Blackwood drew attention in 1939, during their research work on Indian track stress, to their recordings of 12 tons p.s.i. tension in the head on the outer face of the outer rail and inferred that the corresponding compressive stresses on the gauge face of the rail would approach the upper limit of the fatigue range when high lateral loads were caused by locomotives.

A theoretical method of calculating bending moment, twist and distortion in a flat-bottom rail subjected to a twisting couple was described in 1926 by Professor Timoshenko, and latterly the Indian railways have made use of that method so as to calculate the total stresses in the rail head.

Pleasing the Traveller

TRAVELLERS by British Railways, as in other countries, tend to complain to each other and to their friends of faults in the service, but seldom are complaints sent promptly and with full details to the appropriate railway authorities, and even when this is done the passenger is reluctant to allow his name to be used in subsequent investigations. Some of these faults were mentioned in a recent B.B.C. broadcast discussion, in which they were answered by Mr. David Blee, Chief of Commercial Services, British Transport Commission.

Sunday trains never seem to run on time, it was alleged; and even allowing for the exaggeration which so often turns one late train into "every train," there is no doubt that this is an important point with those who must travel at weekends. The excursionist, too, has often suffered in this way. Mr. Blee pointed out, that with the intensive track occupation in this country, the civil engineer must inevitably have line occupation for maintenance and this must be invariably on Sundays, as likely to affect the

smallest proportion of travellers. It is, perhaps, desirable to bring this point, familiar to railwaymen, home to the travelling public, which includes many casual travellers. For the regular weekend traveller it might be helpful to be warned in advance, where possible, that his train is likely to be delayed. Excursion trains also appear to some critics to be a little optimistically timed.

As to railway catering, Mr. Blee made it clear that on being told what was wrong, the department concerned would follow the matter through and either put it right or give an explanation which was likely to be accepted by reasonable people, more particularly when accompanied by an assurance that it would not happen again. The absence of menus in restaurant cars has given rise to criticism, but the provision of these is now standard practice, and apart from occasional inevitable lapses there should be no difficulties in this direction. As was admitted by speakers in the broadcast, catering on the railways has made great strides in recent years. The cafeteria service at many refreshment rooms is undoubtedly to the public taste. When the new cafeteria cars are in full service there should be a considerable improvement in receipts from the mobile catering services. The present meals served in restaurant cars, while generally of a high standard, are beyond the means of many travellers.

Trains which run fast for a certain proportion of their journey and then give a series of stopping points were also criticised and compared adversely with the named express trains giving throughout express service. Mr. Blee refused to accept that these trains were not in accordance with the requirements of the public. No examples were given in the broadcast, but it seems clear that where a journey does not terminate at a large centre having its own radial services such semi-fast trains are almost inevitable. They give the benefit of a through service to points which could otherwise be reached only by changing en route. This is a particularly important matter to the holidaymaker, who appreciates not having to transfer luggage and small children at intermediate points.

The Economics of Transport

THE late Lord Keynes planned a series of *Cambridge Economic Handbooks* "intended to convey to the ordinary reader and to the uninitiated student some conception of the general principles of thought which economists now apply to economic problems." The series, which is edited by Mr. C. W. Guillebaud, circulates widely not only in the British Commonwealth and in the United States, but also on the Continent. In 1936 Mr. Michael R. Bonavia wrote a manual entitled "The Economics of Transport," and in 1946 revised it for reprinting. Now he has brought the text up to date by describing developments such as the passing of the Transport Acts of 1947 and 1953. The book, which is the subject of a brief notice on another page, runs to only six chapters, covering 215 pages, so that the author could not go into detail on any particular subject. He passes over some well-trodden ground when dealing with the function of transport, its machinery and organisation. His review of railway organisation seems rather sketchy. Seven pages, for instance, surely are inadequate for an informative discussion of a problem which has exercised many minds since the railways of this country were nationalised in 1948.

In the second part of his book Mr. Bonavia gives two chapters to a survey of competition and monopoly in transport, which necessarily involves frequent reference to rates and charges. His last chapter on the control and co-ordination of transport includes an examination of the Railways Act, 1921, which is said to have failed in its object, "because it applied a system of linking charges and net revenue, devised to control a monopoly, to a railway system which was actually engaged in keen competition for a large part of its traffic." Equally, the 1947 Act fell far short of producing an "integrated" system of transport and, having become "a major factor in the politics of the United Kingdom," transport is in an unsettled state for the time being. Probably Mr. Bonavia's treatise would have been more useful if he had deferred its revision until the British Transport Commission schemes for railway organisation and maximum freight charges had been published. He would then have been able to judge definite propositions in the light of economic theory.

In an introduction to the series of handbooks, written in 1946, Mr. Guillebaud foretold the extension of public control over economic activity, with a tendency to call upon economists for opinions on specific problems. That has happened on a large scale in the United States, where transport remains in private ownership though regulated by Federal and State agencies. It is significant that the Association of American Railroads retains as Consulting Economist a distinguished graduate of Yale, Dr. J. H. Parmelee, who was for many years Director of the Association's Bureau of Railway Economics.

Summer Train Services, Eastern and North Eastern Regions

THE principal development on the East Coast main line this summer is the acceleration to a 6½ hr. run in each direction from Mondays to Fridays in each week, of the non-stop "Elizabethan"; the distance to be covered is 392·9 miles and requires an average speed of 60·4 m.p.h. This will be maintained with a tare load of 400 tons, as compared with the 312 tons (in summer) of the pre-war "Coronation," which was allowed 6 hr. with stops at York and Newcastle going north and at Newcastle coming south. On Saturdays trains will leave both Kings Cross and Edinburgh at the same times (9.30 and 9.45 a.m., respectively), but will call at Newcastle and take 7 hr. 3 min. northbound and 7 hr. 7 min. southbound. The "Elizabethan" will run from June 28 to September 10.

Another long run at more than a mile-a-minute will be made by the 7.45 a.m. express from Newcastle to Kings Cross, booked over the 155·9 miles from Darlington to Peterborough in 153 min. (61·1 m.p.h.); this train is accelerated 7 min. to reach Kings Cross at 12.39 p.m. A fourth lengthy 60 m.p.h. run is that of the up "Tees-Tyne" Pullman, scheduled to cover the 232·3 miles from Darlington to Kings Cross in 230 min. (60·6 m.p.h.). Over the Great Northern Section the fastest booking remains that of the 7.50 a.m. from Kings Cross, required to cover the 106·7 miles from Hitchin to Retford in 96½ min. (66·7 m.p.h.), and also the 76·3 miles from Doncaster to Darlington in 72 min. (63·6 m.p.h.).

This summer the "Norseman," running between Kings Cross and Tyne Commission Quay, Newcastle, in connection with the B. & N. line steamers, also is allowed to carry ordinary passengers to and from York and Newcastle. Leaving Kings Cross at 9.5 a.m. on Mondays and Fridays, it reaches York at 12.23 p.m., and Newcastle at 2.2 p.m., so providing a useful relief to the 10 a.m. down "Flying Scotsman." The Wednesday and Saturday workings, however, are not made similarly accessible to York and Newcastle passengers, except to pick up. In the up direction also the "Norseman" picks up passengers on Mondays and Fridays at Newcastle at 9.18 a.m. and York at 10.52 a.m. for Kings Cross, reached at 2.17 p.m.

Most of the expresses between Kings Cross, Leeds, and Bradford have their overall times cut by about 5 min., but this is merely due to the removal in summer of the 4 min. recovery margin allowed in the winter timetables through Peterborough; it would be helpful next winter if it could be found possible to dispense with these margins, and thereby to avoid the constant variations in train times to which their removal and reimposition give rise. The 9.10 a.m. down "White Rose" starts at 8.50 a.m., and reaches Leeds at 12.28 p.m., an acceleration of 7 min.; the noon down "Queen of Scots" Pullman is moved to 12.5 p.m. and accelerated 5 min. to reach Leeds in 3¼ hr., as last summer; the 3.45 p.m. down "West Riding" is

speeded up by 7 min. and arrives in Leeds at 7.25 p.m.; and the 6.18 p.m. to Leeds starts at 6.10 p.m.

A new service, with refreshment car, is provided from Kings Cross at 6.18 p.m. to Peterborough, Boston, Grimsby, and Cleethorpes; this gives an acceleration of 42 min. to Grimsby Town over the stopping service provided previously from Peterborough in connection with the 6.18 p.m. down Leeds train, the Grimsby Town arrival being now 10.15 instead of 10.57 p.m. In the opposite direction a corresponding service is provided, also with refreshment car, by extending the 6.55 a.m. from Grimsby Town to Peterborough to Kings Cross, arriving at 10.40 a.m.

On the Great Eastern Section there has been a complete overhaul of the service over the East Suffolk line between Ipswich, Yarmouth and Lowestoft, as a result of which all the stopping trains have been accelerated by from 11 to 15 min. Some of the expresses also have benefited; among these the 8 a.m. from Yarmouth South Town now leaves at 8.31 a.m., and runs from Ipswich to Liverpool Street independently of the 8.45 a.m. from Norwich, arriving at 11.35 instead of 11.23 a.m., an acceleration of 19 min. The 12.10 p.m. Yarmouth leaves at 12.22 p.m., and reaches London at 3.58 instead of 4.7 p.m., 21 min. quicker. The 2.55 p.m. up starts at 3.6 p.m., and is accelerated 11 min., and the 5.58 p.m. at 6.10 p.m., with a gain of 21 min.

In the London suburban area of the Great Eastern Section an interesting development is the provision, during the slack hours of the day, of hourly fast trains between Liverpool Street and both the Enfield Town and Chingford branches. The former call only at Hackney Downs between Liverpool Street and Seven Sisters, and the latter are non-stop between Liverpool Street and St. James Street.

The introduction of the new diesel train sets has transformed the local services in the Leeds and Bradford area. The new trains follow the ex-Great Northern route between Leeds Central and Bradford Exchange, and in most cases start at 6 and 36 min. past each hour from Leeds, and at 5 and 35 min. past from Bradford. The time taken is 20 min. westbound and 19 min. eastbound, or 2 min. more if an intermediate stop is made at Stanningley. On Sundays the same sets provide an hourly service between Bradford, Leeds, Harrogate, and Knaresborough.

In the North Eastern Region there is a faster booking than ever previously, for the northbound "Tees-Tyne" Pullman has to cover the distance in 41 min. (64·5 m.p.h. start to stop). There are also four daily runs in this direction in 43 min., and, in the southbound direction, two in 42 min., three in 44 min., and a number in 45 min. In all, from Mondays to Fridays in each week, the Eastern and North Eastern Regions together have 22 runs, aggregating in length 2,098 miles, booked at over 60 m.p.h. from start to stop, including seven (468 miles) at over 63 m.p.h.

South African Railways & Harbours

THE report on the South African Railways & Harbours for the year ended March 31, 1953, by Mr. W. H. L. Heckroodt, then General Manager, has been sent us by his successor Mr. D. H. C. du Plessis. It opens with a warm tribute to Mr. Heckroodt's long and honourable association with the S.A.R. & H. by the Parliamentary Select Committee on Railways & Harbours.

The year under review again saw many of the previous year's traffic records eclipsed, but the serious deterioration in the financial position was responsible for a deficit of £4,824,127, despite record tonnages carried. This unfortunate result was due mainly to a £13,699,532 increase in expenditure, and also to a fall of £572,740 in harbour transportation revenue caused by a tightening of import control, and to decreasing rail leads on high-rated traffic previously imported, but now being produced locally as a result of the rapid industrial expansion in the country.

The total tonnage carried was 69,044,073, a volume 3,874,301 tons greater than that in the previous year, and 25 per cent in excess of that in 1948-49. During 1952-53 268,743,474 passenger journeys were made as compared with 261,820,463 in 1951-52. Details of the principal traffic and financial results of both years are compared below.

	1951-52	1952-53
	Thousands	Thousands
Railways		
Passenger journeys	261,820	268,743
Goods tonnage conveyed	65,170	69,044
Passenger train-miles	21,098	21,507
Mixed train-miles	5,953	6,533
Goods train-miles	58,886	60,640
Total train-miles	85,937	88,680
Total ton-miles	14,209,629	17,906,080
	£ Thousands	£ Thousands
Passenger receipts	15,340	15,824
Parcel and mails receipts	3,183	3,474
Goods, coal and livestock receipts	75,615	77,227
Miscellaneous receipts	6,485	5,963
Total receipts	100,623	102,489
Working expenses	60,185	66,564
Depreciation	5,642	5,897
Total expenditure	65,826	72,461
Surplus	34,797	30,027
Interest and other charges (net)	29,211	34,958
Balance, railways	5,586	−4,931
Harbours—		
Revenue	6,446	5,873
Expenditure	4,341	4,713
Steamships—		
Revenue	682	318
Expenditure	495	278
Airways and Airports—		
Revenue	3,940	4,587
Expenditure	4,236	4,469
Surplus on all services	7,581	−3,613
Net revenue appropriations	−1,211	−1,211
Surplus on all services	6,370	−4,824

An intensive economy and efficiency campaign was being conducted with a central committee at headquarters under the General Manager, and there were also committees on each system and in every department, and the whole staff was wholeheartedly supporting it.

The electrification of the Bellville-Worcester section of the Cape Western main line was inaugurated on April 8, 1953. Extension of this electrification to Touws River was also well advanced, the whole 149 route-miles Bellville to Touws River being estimated to cost £2,679,000 for fixed installations and £1,290,000 for electric locomotives. During the year under review 34 "S2" class steam shunting locomotives, 10 "ES" class electric shunting engines, and 11 class "4E" main-line electric locomotives were placed in service, and no fewer than 420 engines of all types and gauges were on order, namely, 100 "S2" class, 25 "S1" heavy shunters, 50 non-condensing and 90 condensing class "25," 25 "GM" heavy Garratts, 25 "GO" light Garratts, 5 "NG" narrow gauge, 60 "5E" electric and 40 "4E" class. Also, 95 new coaches built in the Department's workshops were put into traffic, as were 2,479 new wagons, 500 built in railway shops and 1,979 by a South African firm.

One new construction was completed and opened for traffic during the year, the 9-mile single line from Odendaalsrus to Allanridge.

Six Years Progress on the Pennsylvania

(By a North Eastern correspondent)

ROUNDABOUT the year 1900 a study of the Pennsylvania Railroad's organisation and operating methods gave the North Eastern Railway ideas for invigorating its own system. Fifty years on, it is refreshing to see how energetically the greatest of the American privately-owned railways has proceeded during the last six years to recreate its property after excessive user and inadequate maintenance in wartime. On the return of peace, railways in the United States were beset by much the same difficulties as hampered the recovery of British railways. Traffics decreased and competition with other forms of transport was intensified. Working costs rose steeply, the combined index of material

prices and wages rates advancing from 71 in 1945 to 102 in 1948 and to 137 in 1953. Appeals for freight rate increases to meet the growing expenses were delayed unduly by the Interstate Commerce Commission's procedure, so that the railways were thrown back on their own resources. The Pennsylvania decided that its best course was to draw up a comprehensive programme of improvements to permanent way, structures and equipment. Each project included in the list was tested to ensure that the investment in it would produce a substantial economy.

In giving effect to these thorough-going plans the Pennsylvania spent over a thousand million dollars (say £375,000,000) during the six years 1948-53. Most of the schemes now bear fruit, though some time will be required to complete a number of extensive works which were begun recently. The board considered that by the end of last year it had reached a milepost providing "a convenient perspective of accomplishment" and the results of its stocktaking are summarised below.

The engineers maintained the roadbed of 10,066 miles, carrying 25,000 miles of track, by depositing about 6 million tons of stone, slag and gravel ballast at a cost of $17 million. They "raised" 17,000 miles of track, installing 11,500,000 new sleepers at a cost of 5 dollars each, 363,000 tons of new rail costing $30 million and 475,000 tons of old rail reconditioned for use in branch lines or sidings. Capital expenditure on bridges, trestles and culverts was nearly $10 million and the same amount was spent on eliminating 5 tunnels between Pittsburgh and Columbus to allow oversized loads to run through instead of being sent by roundabout routes. Another $14 million went on improving yards and sidings, while over $20 million were spent in building and remodelling office buildings and station facilities. Better signalling and communications were provided at a cost of more than $19 million; speed control was added to existing cab signal systems and telephone communication was extended between locomotives, guards vans and wayside places.

Great changes were made in motive power. At the start of 1948 the Pennsylvania used 4,100 steam locomotives, 73 diesels and 277 electric locomotives. By the end of 1953 the stock consisted of 1,390 steam, 1,404 diesel-electric and 272 electric locomotives. The diesels represented an investment of some $300 million and another $21 million was put into new shops and machinery to take care of the diesel fleet. The gradual substitution of diesel for steam motive power reduced the book value of the locomotive stock at the end of 1953 by 5 per cent from the 1952 figure and in the near future 200 or 300 more steam engines may be scrapped. Train working improved last year and substantial savings in both road and yard operation were effected by putting additional diesel locomotives into traffic.

Between January, 1948, and the end of 1953 the Pennsylvania scrapped 65,000 wagons, installed 30,000 new wagons, and repaired 143,0000 wagons thoroughly. It began this year with a fleet of 173,900 wagons, having a total capacity of 11¼ million tons and representing 10¼ per cent of the whole wagon stock owned by the U.S.A. Class 1 railways. P.RR. wagons are subject to hard usage at mines, quarries, and steel works, like wagons in the North Eastern Region, British Railways, and their maintenance is costly. This item of expenditure may be reduced when new shops now being erected at Hollidaysburg, near Altoona, are opened. These shops, named after Samuel Rea, an able President of the railroad, will cost $14 million and will be the most efficient establishment in the U.S.A. for repairing wagons.

Though the Pennsylvania carries 14 per cent of all railway passenger travel over U.S.A. lines, the book value of its passenger train vehicles is only $166 million, or 37 per cent of the $445 million, at which the wagon stock is valued. The present fleet consists of 3,300 cars capable of carrying 175,000 passengers and 2,395 cars for baggage, parcels and mail. These numbers are not likely to increase, as during the last six years the average number of passenger train miles per month has been cut by 28 per cent and in 1953 passenger train revenue was little more than one-fifth of all operating revenue.

The rapid progress made with the programme of new works helped to reduce the operating ratio from a peak of 90·7 per cent in 1946 to 83·6 in 1953. Over the same period a reduction from 49 per cent to 42 was made in the transportation ratio, which represents the share of operating revenue required to pay station and yard expenses, plus train costs for handling and moving traffic. The management aims at bringing this ratio below 40 per cent, but in 1953 wages and payroll taxes were so high that they took 56 cents out of each dollar of operating revenue.

Last year's operating statistics were satisfactory. The Pennsylvania carried 206·2 short tons of revenue freight an average distance of 244 miles, thus moving nearly four times as many ton-miles over each mile of road as British Railways worked. Since 1948 the train load was never less than 1,400 tons and train speed quickened from 13·5 m.p.h. to 17·2, an all-time high. The hourly output of freight train working grew by 28 per cent from 18,895 to 24,315 net ton-miles per train hour. That record figure was equivalent to the output of 15 average trains in the North Eastern Region of British Railways. For forceful railroading there is nothing to match the running of these 66 wagon trains up to Harrisburg, where the Pennsylvania's electrified area ends and diesels take over the working to Altoona and round the Horse Shoe Curve, which opened access to the West 100 years ago. Beyond in a ring of collieries and steel works lies Pittsburgh, where many lines meet, for the Pennsylvania serves directly eight of America's ten largest cities. On the western side of Pittsburgh, the Conway classification yard is being rebuilt at a cost of $34 million to deal with 8,000 wagons a day.

In laying out a large marshalling yard the latest practice in the U.S.A. is to instal two sets of wagon retarders to regulate shunting operations. In reconstructing Temple Mills yards, British Railways, Eastern Region, intend to adopt that system of working for the first time in this country. The Eastern's enterprise makes one wonder whether the time has not come for the North Eastern Region to expand Skelton sidings, north of York, into a mechanised yard capable of marshalling all the traffic passing through York. Such an extension, at some future date, was contemplated when Skelton sidings were laid down during the war to relieve the pressure on the old York yards and a well designed scheme should yield an adequate return on its cost. Once again the North Eastern Region might benefit by following the example of the Pennsylvania Railroad.

Letters to the Editor

(*The Editor is not responsible for opinions of correspondents*

British Railways Posters

May 28

SIR,—If I may reply to Mr. J. H. Brebner's letter in your issue of May 28: I was well aware of the existence of a poster exchange scheme on a limited scale; my plea was for its extension. During a visit to Switzerland last year I saw only one British Railways poster, at Zürich Hauptbahnhof, and that was the not particularly attractive "Britain through the Carriage Window." To quote another case, the French National Railways have good publicity and good trains, as any British newspaper reader knows, British Railways only have their posters, so that they should make as wide a display of them as possible.

Yours faithfully,

JOHN RODGERS

"The Cottage," 132 Worrin Road, Shenfield, Essex

[In our experience, a great many attractive posters produced by the British Transport Commission and by the several Regions of British Railways are to be seen in stations on the Continent and achieve as high a standard of production as those issued by Continental railways.—ED., *R.G.*]

THE SCRAP HEAP

Jubilee Presentation

The Wynental Railway, a line in central Switzerland connecting Aarau with Reinach and Menziken-Burg, celebrated recently its fiftieth anniversary. On the anniversary day all passengers on the morning train were offered hot coffee and rolls, and smokers were presented with locally-made cigars.

Train Serenade

The noisiness of airports—and other things—seem to have little effect on birdsong. It may even be a stimulus, as it was to a nightingale of my acquaintance that nested close to a suburban railway and loudly serenaded the numerous trains throughout the day and most of the night.—*from a letter to "The Daily Telegraph."*

Engine Spotter

The passion for trains was lifelong with Dvorák. In Prague, before his fame spread, he would walk early each day to the Franz-Josef Station to haunt its yards, "noting the opus numbers of the locomotives" and the drivers' names. If lecturing cares at the conservatoire in later life prevented this pilgrimage, a pupil would be sent to ascertain which engines were pulling out the expresses. One sent on this errand was his future son-in-law. When he returned, giving Dvorák the number not of the engine but of the tender, the composer teased his daughter: "So that is the sort of man you're going to marry!"

Indulging his hobby was not so easy in New York, during the period which produced the "New World" Symphony. United States stationmasters were apt to refuse the privilege of wandering among locomotives, and Dvorák would therefore often make a tiresome journey to 155th Street, from where he could view the Chicago expresses on their vehement missions.—*From "The Manchester Guardian."*

Railways as Public Property (1854)

It is not a quarter of a century since the first railway for passenger traffic was opened, and the first victim claimed by the giant we had called into being. At that time the marvellous nature of the invention, the mercantile character of the locality which saw it introduced, and the immense profit that had been derived from similar enterprises between the identical termini conspired to attach the ideas of monopoly and private gain to what evidently was a public affair. It was very little considered that . . . the whole circulation of society was to be increased and its pulse quickened by the change; and that railways, once made, would be an institution of the country. . . . Now, however, that the work is done, and the map of the British isles is reticulated with railways in every direction, another and an external view has gradually sprung up. We have a right to the full use of this property. Whatever conditions have been imposed, or not imposed, upon railway companies—whatever profitable interests conceded—the railways, once constructed by virtue of an Act of Parliament overriding all the rights of property, are public and common to all on fair and equal terms. No Government can afford to take any other view of them.—*From "The Times," of May* 27, 1854.

[The victim was the statesman William Huskisson, killed in 1830 at the opening of the Liverpool & Manchester Railway.—ED., *R.G.*]

In the West Country

(*Memories of the excursion organised for delegates to the International Railway Congress on May* 22 *and* 23.)

By Pullman coach to Plymouth Hoe
It seems a deuce of a way to go
Amidst a chatter of foreign tongues
And little fresh air to breathe in your lungs;
A speech by the Mayor, and then we're away
Over the moors to Princetown grey
With only a stop at Badger's Holt
In which a Devon tea to bolt.
Then on to Torquay to stay at the Grand,
With a reception, a dance, and a first-rate band
At the Victoria Hotel, and another Mayor
But minus a speech—which is only fair
As we've had a long day and enough has been said
And all we now want is to get to bed.

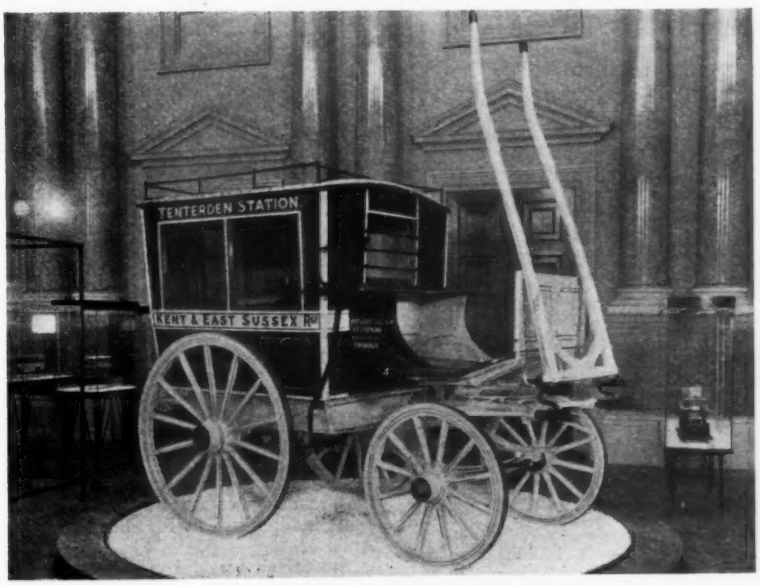
On Sunday we board our coaches again;
We're off to Totnes and it looks like rain,
But it brightens up and we take a boat
A-down the Dart and away we float
Past the R.N.C. till we reach Kingswear
Where our faithful coaches reappear.

Then back to Torquay for a goodly lunch,
And a quiet siesta, but I've a hunch
We'll be pretty tired when we get back home
But not as bad as Capri to Rome.

And then to Exeter we hike
By coach once more because of the strike
And join our Pullman cars again—
There's a lot to be said for going by train.
An excellent dinner beguiles the way
And we reach Waterloo at the end of the day.
Though the route has been Southern, yet I'll engage
That the style throughout has been real broad gauge.

E. A. W. D.

Edwardian Horse Bus



Horse bus built in the early years of this century for the Kent & East Sussex Railway, on view at the Popular Carriage Exhibition in the Shareholders' Meeting Room at Euston. The name of the K. & E.S.R. Managing Director, Colonel H. F. Stephens, is painted on the box seat

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Cape Western Electrification

Electrification of the Cape Western main line was extended recently from Worcester to De Doorns and daily journeys are being worked over this section with the North British-G.E.C. 3,000V. "4E" class 1-Co+Co-1 locomotives. It is hoped to make trial runs over the De Doorns-Touws River section through the Hex River Pass at the end of June. Through working with electric traction between Cape Town and Touws River will not begin until the 1,500V. section between Cape Town and Bellville is in operation at 3,000V.

The "4E" class locomotives, of which 40 are being supplied, are rated at 3,030 h.p. and are equipped for regenerative braking in parallel, series-parallel, and series. In the motoring connection there are 12 economical running speeds, there being one full-field and three weak-field notches in each grouping.

INDIA

Railway Territorial Group

Before August 15, 1947, there were many Auxiliary Force Units throughout India. Many of them were attached to the railways which had their own regiments. The officers of the regiments were recruited from British officers and the N.C.O.s and men from the European and Anglo-Indian staff. When India obtained its own government these units were disbanded.

In the ensuing years, Indian Territorial Units have been set up, some of them attached to the railways. Early this year more than 1,000 railwaymen attended the annual training camp of the Railway Engineers group of the Territorial Army held at Tughlakabad. This was the first combined camp of all units of the Group. During the camp the men were given an intensive course of training which included rifle and pistol firing, the use of light automatic weapons and drill with and without arms. Instruction was also given in hygiene and sanitation. For training in tactics, the 20 Territorial Army officers attending the camp were taken to an exercise by regular troops.

Railway Centenary Trains

The two railway centenary exhibition trains had toured 16,472 miles by the end of January. The broad gauge train had covered 6,640 miles and the metre gauge train 9,832 since the middle of 1953. Over 1,250,000 persons have visited these trains and the total collection derived from entrance fees charged up to January 31, 1954, was Rs. 3,04,265. The two trains are likely to remain on tour up to the end of June, and are expected to cover jointly a further 14,000 miles during the period, bringing the total distance covered in a year of exhibitions to over 30,000 miles.

CANADA

Rail-Road Competition

The difference between the actual net revenues of the railways and the possible earnings if operating expenses and revenues were in balance was given as $400,000,000 by Mr. S. W. Fairweather, Vice-President of Research & Developments, Canadian National Railways. In an address recently he noted the discrepancy between the 127 per cent increase in operating costs since 1939 and the 61 per cent increase in freight charges. He acknowledged the need for some degree of regulation of rates, particularly in non-competitive areas. Where there was competition between rail and road, however, regulation meant that the railway was handicapped in not being able to bear its full economic strength on its marketing problem. This competition was unfair in the sense that road transport could pick its routes, services and goods and did not pay adequately for the use of the highway. Because of the artificiality of the competition, he said, Canada was paying $150,000,000 a year more than necessary for its transport.

Numbering of Reserved Vehicles

A new numbering system for sleeping and parlour cars on the Canadian National Railways was put into effect on April 25 when the new timetable came into force. The system provides a new method of incorporating train and vehicle numbers on the same ticket. This is effected by having the initial numbers coincide with the train numbers. Vehicles are marshalled in the train in numerical sequence so that passengers know at a glance where their accommodation is.

Sleeping cars in the "Inter City Limited" from Montreal to Toronto, for instance, begin with the number 17, as this is the number used to designate that train. Ticket number 1704 indicates that the space is in the fourth car from the rear of the train.

ARGENTINA

Combined Rail-bus Service to Chile

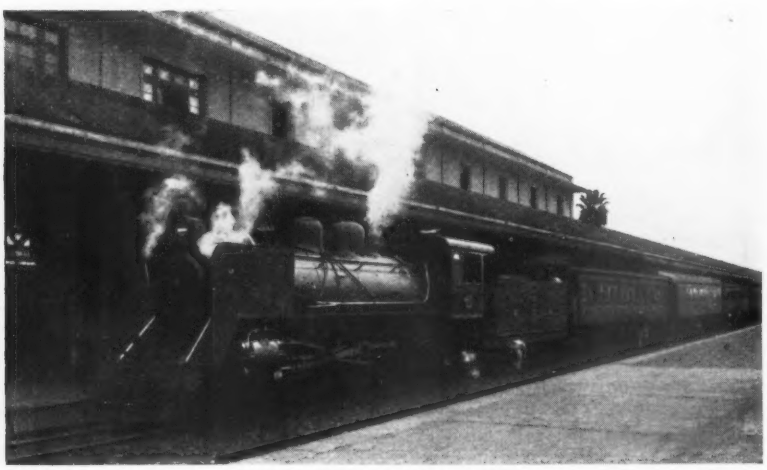
The General San Martin Railway has inaugurated a new bi-weekly road-rail international service between Buenos Aires and Santiago de Chile. Passengers use the express "El Libertador" between Buenos Aires and Mendoza and the subsequent stage of the journey is effected by Mercury-Monterrey buses which are specially adapted for the crossing of the Andes.

New Federico Lacroze Terminal

The new Federico Lacroze terminal of the General Urquiza Railway was officially inaugurated by President Peron on April 22.

Advantage was taken of the opportunity to stage an exhibit of the improvements and works in course of execution, which include a new power station at Km. 14, with substations at Pereyra, Villa Bosch and Coronel Francisco

International Travel in Southern Africa



Photo] [F.H.Worsfold

Overnight express from Pretoria on arrival at Lourenço Marques, Mozambique Railways, hauled by Baldwin-built 4-6-2 locomotive. The coaches all belong to the South African Railways, except the second, which is owned by the Mozambique Railways

Lynch. Two 10,000 kW., 13,500-volt turbo-alternating generators have already been acquired and the foundations of the buildings excavated. One of the new Henschel express passenger locomotives and one of the five new Ganz diesel sets for service between Concordia and Posadas were on view, as well as maquettes and photographs of the forthcoming extension of the Monte Caseros coach and wagon shops, which will occupy 20,000 sq. m. Completing the exhibition were numerous graphs, photos and samples relating to the engineering, electrical and signalling departments, with special emphasis on the part played by local industry.

ITALY

Rome Underground Railway

After the arrival at Rome of the first eighteen motor coaches for the Rome underground railway, trial runs were carried out on the open-air section of the only part of the line built, between Porta San Paolo and the terminal station in the former exhibition grounds, now a suburban settlement. The trials have been extended to the underground section between Porta San Paolo and Piazza dei Cinquecento, the square in front of the Termini main line station. The whole line is to be opened to public traffic on May 29.

It will be recalled that after the many vicissitudes of this line since its building began in 1938, it was taken over by the State Railways, but its working has been entrusted to the Società delle Tramvie e Ferrovie Elettriche, the company owning and working the electric railway system connecting Rome with its eastern surroundings, for an experimental period of three years.

FRANCE

S.C.E.T.A. Workshop

The Société de Controle et d'Exploitation des Transports Auxiliaries (S.C.E.T.A.), the S.N.C.F. road transport subsidiary, is responsible for operating cartage services in Paris and other large towns. For some time it has been trying to obtain suitable premises in Paris for a central workshop for the maintenance and repair of its vehicles. It was decided to use the former railcar workshop at Noisy-le-Sec for this purpose, and during the last quarter of 1953 the premises were converted and put progressively into service. Staff for the workshop was recruited not only from S.C.E.T.A. personnel but also from those previously employed on railcar maintenance and repairs.

Electrification Costs

In reply to a parliamentary question, the Minister of Public Works & Transport recently gave some details of the capital cost to the National Railways of postwar electrification schemes. Since 1948 frs. 42,000 million (approximately £43 million) has been spent on the Paris-Lyons line, frs. 4,197 million on the Ambérieu network, 1,040 million on the Savoy network and, so far, frs. 8,304 million (£8,500,000) on electrification of the Valenciennes-Thionville line at 50 cycles.

Publications Received

The Economics of Transport. By Michael R. Bonavia. London: James Nisbet & Co. Ltd., 22, Berners Street, W.1. Cambridge: The University Press. 7½ in. × 5 in. 219 pp. Price 8s. 6d.—This book, the subject of editorial comment on page 624, is a revision of the author's original work published in 1936. Mr. Bonavia, who is Principal Works & Development Officer, British Transport Commission, and a Member of the Institute of Transport, deals with his subject in six chapters, devoted respectively to the function, means, and organisation of transport, to competition, monopoly, and to transport control and co-ordination. Inevitably most of the many points can only be touched on. As it is, the 36 sections into which the whole of the six chapters are divided, each dealing with an important aspect, average only five pages.

Chemins De Fer (Railways). Tome I: Traction. Tome II: Materiel, Voie, Exploitation. (Vol. I: Motive Power. Vol. II: Rolling Stock, Permanent Way, Operating.) By Georges Bohl. Paris, 6: Dunod, 92, Rue Bonaparte 6 in. × 4 in. 328 pp. and 268 pp. respectively. Price fr. 480 each.—Numerous changes and additions have been made in this handbook, now expanded to two volumes. It provides a wealth of data, tables, and formulæ of value to users engaged in every kind of technical railway work, and of general interest to all railway readers whatever their particular sphere of activity. The motive power volume now contains information on a new method of calculating boiler dimensions, based on experiments at the Vitry locomotive testing station. Electric and diesel traction are described in specially augmented chapters which review world practice in these directions. Developments in the use of rubber soleplates and concrete sleepers are dealt with in the permanent way section. French practice forms the basis of all sections of the handbook, and the chapter on operating sets out in full the Decree of March 22, 1942, by which procedure in France is now regulated.

Integron Low-Fin Tubing.—Imperial Chemical Industries Limited has issued an illustrated booklet giving the chief characteristics and uses of Integron low-fin tubing for use in Freon-12 water-cooled condensers. The latter range in size from 25 to 1,000 refrigeration tons, and for the most part are used in conjunction with reciprocating and centrifugal compressers. Details are supplied of the sizes and metals normally used and the means of calculating the linear footage requirements of Integron tubing; the figures are conservative, and based on a set of standard conditions: saturated Freon-12 on outside of tube, with condensing temperature of 105 deg. F.; average water velocity inside tube of 5 ft. per sec.; a water temperature of 90 deg. F.; log mean temperature difference 14 deg. F., and heat rejection of 12,000 B.T.U./hr.

Nickel Alloy Spring Materials.—Besides the usual requirements of adequate mechanical strength, springs must often be used in conditions which add further problems in specifying the material which will give the required properties. Such requirements may include resistance to corrosion to minimise failure due to corrosion-fatigue, or resistance to high-temperature conditions. Special characteristics may be required, as, for instance, in springs for accurate instruments where low thermal expansion and zero thermo-elastic coefficients are desirable. Such properties and characteristics are available in the wide range of high-nickel alloys, and a recent publication "Nickel Alloy Spring Materials," issued by Henry Wiggin & Co. Ltd., presents in convenient form, data to assist the designer to make the correct selection of materials. First published two years ago, this revised edition now contains data on Nimonic 90, an alloy suitable for springs operating at high temperatures.

Coseley Steel Framed Buildings.—Various examples of jig-built steel-framed buildings manufactured by the Coseley Engineering Co. Ltd. are given in an illustrated leaflet issued by the firm. All design stresses are calculated in accordance with BSS No. 449, and are available in multiple lengths of 12-ft. 6-in. spans of 30, 40, 50, and 60 ft., with height to the eaves of 15, 12, 10, and 8 ft. respectively. Lean-to extensions can be supplied up to 20 ft. and eave overhang of 3 ft. can be supplied.

Visitor's London.—This new guide published by London Transport covers all London and Home Counties and gives details of nearly 400 "sights," arranged in alphabetical order. In addition to the main book of 130 pages, there is a 36-page "How to get there" section, which gives the times of admission to every London "sight" and details of how to reach it by bus, underground and main line. The book is by Harold F. Hutchison. It is on sale, price 4s. 6d., at all London Transport stations, from the Public Enquiry Office at 55, Broadway, and from leading newsagents.

Design of Steam Locomotives for the Tropics

Some considerations in providing for climatic and other conditions

By T. B. Welch, formerly Chief Mechanical Engineer, Nigerian Railway

CLIMATIC conditions in the tropics can and do change much. The humid heat, day and night, is common to flat coastal and riverside areas, but considerable variations are met with at higher altitudes, where moderate day temperatures often are followed by cold nights. An even greater variation is found in flat sandy desert areas, where very high day temperatures, often 120° F., are followed by a cold as great as, or greater than at the high altitudes. There is no summer or winter, as experienced in temperate climates, but usually alternate wet and dry seasons of varying length. This must be considered carefully by the designer of a locomotive to operate in the tropics, which may have to encounter all three of these conditions in the course of a few days.

Staff Considerations

The available personnel whose duty it will be to operate, service, and maintain the locomotives in a roadworthy condition, is generally, except in the cases of the older-established tropical railways, of indifferent quality, this is not wholly the fault of the indigenous employee, but because of the fact that most tropical railways are still comparatively young.

Training has to be carried out by expatriates, but selected employees are also sent to other railways for further tuition and experience so that, on their return, they can take their share in improving the knowledge of their fellow workmen.

A further difficulty is the selection of the right type of employee to train. It is rare, in the writer's experience, to find a youth who wants to be a driver or a fitter because he is really interested in the job: all too frequently it is because the pay and conditions attract him, and any interest must therefore be instilled into him after his employment by those responsible for his training.

Gradients and Curves

With few exceptions, the tracks of tropical railways have been laid as cheaply as possible. Major structures are comparatively rare, and gradients are steeper and curves sharper than would have been necessary had more money been available. The result is insistence on comparatively low speeds, and long overall journey times, coal consumption heavier than it should be, because of the low permissible speed, and the consequent absence of the desired momentum in assisting up short lengths of adverse gradient.

Matters are often made worse by the existence, at the foot of a gradient, of a bridge or culvert, for which a speed restriction is imposed. The frequency of curves assists in producing rapid tyre flange wear. The slow "slogging" up adverse gradients with heavy loads behind the tender—(freight trains are usually made up to full permissible load for the class of locomotive hauling them)—produces undue wear of motion, boxes, and rods; and track undulations, which cannot be eliminated altogether, especially in wet weather, have an adverse effect on springs and adjusting screws or hangers.

Single track is usual and this is compensated for curvature. This is well enough when the train is descending the gradient at a speed for which the degree of compensation is provided, but when ascending, and traversing the same curve, altogether different conditions apply, and the friction caused by the cutting of the tyre flanges into the inner rail is an added burden to the locomotive. Rail weight is often on the light side, and this will govern the maximum axle load.

A new locomotive sent out to a tropical railway, therefore, is in for a pretty tough time, and considerable trouble must have been expended over its design to ensure anything like adequate performance.

Simplicity

The first consideration is simplicity in locomotive design. Fittings, such as those which, by regular adjustment of some valve or spring are said to guarantee approximately 10 lb. per mile reduction in coal consumption, or 10 m.p.h. increase in speed, or a further 10,000 miles life to some working part, are suitable enough for a railway where such regular adjustments can be guaranteed.

On most tropical railways, however, there are insufficient trained or qualified supervisors to see that the work is done. It is hard enough to ensure that the most simple adjustments are made correctly. To explain to an inexperienced employee the main features of a simple locomotive, and to follow this up by providing him with such a locomotive to operate or maintain is to guarantee the most efficient results. Refinements can follow in due course, as experience increases.

Boilers

As to boilers, the writer has had experience of both copper and steel fireboxes, and with both classes of water space stays. There is little doubt that copper is preferable, not because there is any inherent defect in a steel box or stay, but because the copper will withstand the inexperienced and, therefore, somewhat rough treatment which it can expect on the average tropical railway especially in connection with washing out, performed during the hours of darkness when supervision is usually reduced. Self-cleaning smokeboxes have saved their moderate additional cost many times over in preventing burning of plates, and still more when the saving in staff employed to empty them and clean tubes in the shed is considered.

Fireboxes

Arch tubes, both to help in circulation and to support the brick arch, have been found an excellent investment, and so also has the drop grate: the Hulson type of segment has been especially efficacious when small coal with a low clinker content is used. With this type of grate, a hopper ashpan is employed very efficiently, and it is most desirable that with this is incorporated an efficient drenching apparatus.

The type usually depending for its water supply on the injector delivery pipe is not as useful as a pipe connecting directly to the tender and operated by a cock, as the boiler may be full enough when the time comes to quench the ashes in the hopper, and the engine crew will be averse to take the risk of overfilling.

A plain blastpipe with an orifice rather on the small side is recommended, to counteract such things as a temporary supply of small coal, or coal of poor quality.

The task of the firemen of a coal-burning locomotive in the tropics not fitted with a mechanical stoker can be extremely arduous, and the enforced use of a rake or pricker to assist in maintaining steam pressure is not looked on with favour.

Cylinders should be equipped with release valves of adequate capacity, and drivers should not be relied on to run down gradients with a "breath of steam" from the regulator. Trains are sometimes difficult enough to control within the maximum speed permitted with the regulator shut tight.

With cylinder lubrication, there seems little to choose betwen hydrostatic and mechanical. The former is capable of being controlled by the driver, but an inexperienced man will probably give little or no adjustment; the mechanical on the other hand is set by shed staff, and can be almost forgotten by the driver, unless something happens to the lubricator drive.

Wheel Diameter

Coupled wheel dia. is a controversial question. In the writer's opinion 4 ft. or 4 ft. 3 in. dia. seems adequate, though many other locomotive engineers favour 4 ft. 6 in. or 5 ft. It has been said above that maximum permissible speeds are low; actually they are likely to vary between, say, 20 and 40 m.p.h. At 40 m.p.h., a 4 ft. dia. wheel is turn-

ing at 279 r.p.m. Unless an engine is fitted with a speed indicator, any wheel dia. larger than 4 ft. 3 in. is likely to make drivers exceed the speed limit.

It is desirable to get all the tractive effort possible while keeping within the maximum axleload permitted. Taking a 13-ton axleload, common on tropical railways, with a two-cylinder simple cylinder locomotive, and 18 in. × 26 in. cylinders, 200 lb. per sq. in. boiler pressure, and 4 ft. coupled wheels, some 30,000 lb. tractive effort is the result, which gives an adequate all-purpose unit.

Any increase in coupled wheel dia. means reduction in tractive effort, unless the other dimensions are increased also, but then there is likely to be trouble with the axleload. So, if a 4 ft. dia. coupled wheel gives the tractive effort required, with a limited axle load, and, at the same time, allows the engine to run in comfort at the maximum speed permitted, no larger dia. seems necessary.

It is important to arrange that the leading and trailing coupled wheels are interchangeable: if inordinate tyre flange wear is experienced, making it necessary for machining at a mileage under that laid down between shop repairs, interchanging the position of leading and trailing coupled wheels will probably enable the full shopping mileage to be covered. The same applies to the carrying wheels: it is a good idea, if possible, to make the engine bogie or pony, the trailing radial or bogie, and the tender bogie wheels and boxes, all interchangeable, so that tyre flange wear can be equalised.

Roller Bearings

On tropical railways, nothing is better than roller bearings for all axles. Dust, and moisture from heavy rain have no effect, and the hot box is eliminated. Attention should be paid to weight checking: a plain bearing will show when it is carrying an excessive load by running hot, but a roller bearing may carry on unnoticed for weeks, with resultant damage only brought to light on dismantling. Another bearing on which rollers are recommended is that between fly crank and eccentric rod.

As the clearance between coupled axleboxes and horns is said to govern the rate of wear of the whole locomotive, strict attention must be given to these parts. Wedges, combined with manganese steel liners, should cause no trouble and ensure long life.

Another controversial point is the use of oil or grease for rods and motion. Grease makes servicing conditions more simple, and takes most of the work away from the driver, at the same time making fewer individuals responsible. If indiscriminate pooling of locomotives could be abolished, oil lubrication, carefully controlled by one or two drivers on each locomotive, would be preferable. A further objection to grease is that it collects cast iron dust from the engine brake blocks, and a grinding compound is thereby formed on the outside of the bearings instead of a lubricant.

Springs

Because of track undulations, springs should be allowed as much deflection as possible, and hangers or adjusting screws made very robust. Attention is always paid to providing longitudinal rocking movement in locomotive suspension, but no notice seems to be taken of the obvious necessity for a very small amount of lateral rocking movement as well. This has been found decidedly beneficial, in the writer's experience.

Bar frames are recommended with confidence, and strengthening behind the leading buffer beam and the rear end of the locomotive, to withstand shocks due to collisions, is essential.

Close attention should be given to the intermediate drawgear: there is a tendency to over-tighten between engine and tender, which gives excessive pressure between rubbing blocks and tends to destroy the effect of the bogie or pony and radial control when taking curves, with resultant excessive tyre flange wear.

The temperature inside the cab can be kept as low as possible by fitting as many steam valves as possible outside the cab, the control spindles passing through the cab front. The vacuum ejector steam valves, especially, should be on the outside of the cab.

Small doors provided below the two cab front windows provide a cooling draught of air, and are particularly useful now that the height of the modern tender has increased so much that the cab is almost totally enclosed.

All fittings should be within easy reach of the driver or fireman from their seats, and as few as possible provided. Both injectors should be on the fireman's side, otherwise one is liable to be worked more than the other.

Electric illumination is practically essential. The track is usually unprotected, and a powerful headlamp is necessary for safety. Besides cab illumination, lamps should be fitted over the motion and over the injector overflow.

Steam-operated sanding gear has not been found to give entire satisfaction when the locomotives are operating in a climate with a high percentage of humidity. An efficient sanding gear is, however, imperative, as rail conditions can be very difficult.

Tenders

In tenders the tank filling hole should be raised clear of the tender top, so that foreign matter cannot be washed in, with consequent adverse effects on the injectors. As up to six tons of coal can be used by one fireman in one trip, it is important that the bunker is self-trimming. An efficient coal drenching gear is an essential.

The above remarks apply to coal-fired simple steam locomotives. Except for the firegrate, bunker, and certain boiler fittings, they apply also to oil-fired locomotives. It is necessary to mention articulated engines, especially of the Beyer-Garratt type, which are ideal for heavy loads on severely curved and graded lines, with, because of their construction, less wear and tear of tracks. Specially trained maintenance staff will ensure most efficient operation.

RECORD STEEL PRODUCTION.—Steel production in April averaged 368,400 tons a week, exceeding the previous highest output, in March this year, of 364,800 tons. The weekly average for April 1953 was 348,500 tons. This record production has been achieved in spite of the effect of the Easter holiday. Pig-iron production also reached a record average of 232,100 tons a week, exceeding the average for March, the previous highest level, by 1,200 tons.

SIGMA WELDING EQUIPMENT.—The Quasi-Arc Co. Ltd., Bilston, Staffordshire, announce that as from June 1, this year, they are licensees in Great Britain and the Commonwealth (excluding Canada) for the Sigma shielded inert gas, metallic-arc welding-process. The process, it is stated, provides accurate and speedy welding of aluminium alloys, and corrosion resisting steels in particular. The Sigma equipment, with a light-weight, water-cooled torch, and remote control for its welding wire speed, which is placed conveniently near the operator, is compact and efficient. This welding equipment, with a.c. selenium plate rectifier power packs, is now available to intending purchasers at Bilston.

GRESHAM TWO-PIPE VACUUM BRAKE SYSTEM.—Gresham & Craven Limited, Ordsall Lane, Salford, 5, has recently installed a complete operational unit of their two-pipe vacuum brake system, with augmented locomotive brake power for diesel or diesel-electric locomotives, for which patents are pending. The set includes motor-driven exhauster, special driver's brake valve giving independent control of both locomotive and train brakes, and also a new design of horizontal brake cylinder, operating at 27 in. vacuum, which gives a 50 per cent increase in normal brake power. This system, it is stated, has been chosen for the 94 main-line diesel-electric locomotives recently ordered from Metropolitan-Vickers Electrical Co. Ltd. for the Coras Iompair Eireann, reference to which was made in the May 14, 1954, issue of *The Railway Gazette*. The firm has recently published List No. 77, which gives an abridged description of the system.

WILLIAM JONES LIMITED: CHANGE OF ADDRESS.—The address of William Jones Limited has now changed to Adam House, 1, Fitzroy Square, London, W.1. The telephone number is Euston 7871. The works will remain at Westmoor Street, Charlton, S.E.7.

TWELVE SPECIAL TRAINS FOR WORKS OUTING.—The largest works outing ever made in the London Midland Region took place on May 29, when 12 special trains were run from Nottingham to Blackpool for the annual outing of Raleigh Industries Limited. Over 6,000 passengers were carried and breakfast was served on the outward journey and supper on the return.

Cab Signalling and Speed Control on Pennsylvania Railroad

Speed control added to continuous cab signalling

FOR many years past the Pennsylvania Railroad has had in operation on its main routes a system of continuous cab signalling. It had previously, in connection with the electrification of its New York terminal area and the Hudson and East River tunnels, adopted in 1910 automatic train stops of the trip action type, in principle similar to those on the London Underground, but did not find them suitable for general application. It experimented for some 10 years with various devices for that purpose without success. In 1922 the Interstate Commerce Commission issued an order obliging a number of railways to install A.T.C. in certain areas, and in the following year the Pennsylvania carried out trials with a continuous inductive system on a branch line. Although not suited to electrically worked lines this equipment was applied to one complete division of the railway.

In the meantime what came to be called the "coded" system, which can be used irrespective of the type of traction, was developed and tried on a few block sections in 1926. By 1930, some nine Pennsylvania divisions had been equipped, but any automatic braking action had been eliminated, by consent of the I.C.C., in favour of plain cab signalling combined with a warning whistle on any restrictive change. The whistle continued to sound until silenced by the driver. This apparatus was fully described in our issue for March 22, 1935, page 552, and by then covered 2,800 miles of track, some 2,000 locomotives, and over 200 multiple-unit electric coaches. Its working proved to meet all technical expectations.

Visual Signalling Arrangements

The P.RR. early adopted electro-pneumatic automatic signalling, at first using home and distant arms, but in 1906 commenced applying the three-position upper quadrant signal, and in 1911 introduced the fourth aspect into its automatic signalling by using two such arms in combination, already met with in interlocking work. The four indications given by this system were "proceed," "approach medium," "approach," and "stop," and the colour light signals used in the New York terminal area were capable of doing the same if required.

Large extensions of this type of signalling were made before the 1914 war. It had then been decided to electrify the 20-mile Philadelphia-Paoli suburban area on the 11,000-V. single-phase system, brought into use in 1915, and it was desired to have a signal giving high visibility among the overhead contact wires and standards. The position light signal—at first called beam light signal—was evolved under the direction of the signal engineer, the late Mr. A. H. Rudd, and the first section was put into service in April, 1915. With this system the semaphore indications previously adopted as standard were simulated by rows of white lights, having a very slight yellow tinge, eliminating all reading of colours for running movements. This gave realisation at last to the idea brought forward many times and occasionally tried, of making an illuminated semaphore arm. With some modifications, suggested by experience on the Paoli line, this signal eventually was made standard on the P.RR. and by 1936 over 80 per cent of its automatic signals were position lights. They found their way also to one or two other lines.

Cab Signal Indications

When cab signalling was adopted for the main routes the apparatus was arranged to reproduce in miniature in front of both driver and fireman the position light signal aspects, so that the conditions represented by the lineside signals should be continuously repeated, except that the "stop" aspect shown by the latter was to be repeated by a special miniature aspect called "restricting," exhibited immediately on passing a "stop" lineside aspect under "stop and proceed" rules. In interlocking areas this "restricting" aspect was made to appear and take the place of "approach" when the train had come within a certain point in rear of a signal at "stop." If it is assumed that an automatic signal ahead is at "stop" the following is the order of the indications given in the locomotive cab. The normal indication is "clear," or "proceed," authorising the driver to run without any specific speed limitation. The first warning sighted will be that given by the ordinary signal ahead, "approach medium," and on passing it the cab signal will change to the same. The next signal will be showing "approach" and on passing that the cab apparatus will again change to correspond. The following signal will be the one at "stop" and the driver should, of course, bring the train to a stand in rear of it.

Whenever one of these changes occurs in the cab signal indication the special whistle starts and has to be silenced by the driver. With an "approach" indication before him he knows that the next signal in advance is at that moment at danger. If he decides to pass such signal permissively the whistle will again sound and the "restricting" cab signal aspect appears immediately he does so. These indications are produced by interrupting the 100-cycle a.c. circulating in the track circuit, which is picked up inductively by the locomotive receiver and "de-coded," at 180 times per minute for "proceed," 120 for "approach medium," and 75 for "approach." The "restricting" indication is produced if there is no current, or exceptionally a steady one, in the track circuit.

Adoption of Speed Control

By 1950, 3,620 track miles had been equipped with these arrangements, covering the most congested traffic areas, including the routes between New York and Washington, Philadelphia and Pittsburgh, Harrisburg and Baltimore, Pittsburgh, and Indianapolis, and extensions were under consideration. Although it might be expected that such a very complete method of keeping drivers informed of the situation ahead of them and assisting them to obey signals, would eliminate practically any accident due to failure to do so, several cases nevertheless occurred where a driver continued running, despite the warning in front of him, without controlling his speed in accordance with it.

The company therefore decided on its own account, without official pressure, to add speed control apparatus to the system and by September, 1953, as explained in a paper given in Chicago by Mr. J. W. White, a general foreman of the P.RR., at the 45th Conference of the Air Brake Association, it had by then equipped 126 electric and 144 diesel passenger locomotives, 90 diesel freight locomotives, 27 diesel shunters, and 14 steam passenger engines. This represents 90 per cent of electric passenger units and 98 per cent of diesel "A" passenger units. The freight engine programme is to follow, but no additional steam locomotives are to be equipped.

The apparatus was designed and supplied by the Union Switch & Signal Division of the Westinghouse Air Brake Company, from whom we have received the accompanying illustrations; permission to publish them and an account of the working has been given by the Pennsylvania Railroad.

Operation

Space does not permit of a detailed account of the functioning of each part of the apparatus, but its principles are as follow: Whenever a more restrictive cab-indication is received and the whistle sounds, the driver must acknowledge it within 6 sec., or the train will be stopped by a full service brake application which cannot be forestalled. In addition, he must control his speed in complete accordance with the new indication, that is he must either be running no faster than it permits or, within 6 sec., initiate a service brake application, known as "suppression," or a full application will result. The "approach medium" indication imposes a speed limit of 45 m.p.h., the "approach" 30, and the "restricting" 20.

Observance of these limits is enforced by a train control governor of the centrifugal type operating electrical contacts working in conjunction with a

Demonstration layout of cab signalling and speed control. On the right is the pick-up and decoding apparatus with signal indicator. To the left the cab equipment and associated apparatus

timing valve, suppression valve, pneumatic circuit controller, certain reservoirs, pressure gauges and a speed control switch. The gauges serve to advise the driver of what is happening and enable him to perform the acknowledging and other operations in the correct manner. The speed control switch is used when a locomotive passes out of an area equipped with the system, at which moment, there being no signalling code current to pick up, the "restricting" indication is produced. The switch can then be used to put the equipment out of action. When a coded current area is once again entered, it must be restored to the "in" or operative position, or a brake application will take place within 6 sec.

Let it be assumed that a train is running at speed under clear signals, say up to 80 m.p.h., and comes to an "approach medium" (45 m.p.h.) signal aspect, seen only close to, owing to poor visibility. On passing it the cab signal will change to correspond and the whistle start to blow. Within the 6 sec. the engineman initiates the required brake application (a reduction of 20 lb. pressure in the train pipe will effect the required "suppression"), and as soon as speed has been brought below 45 m.p.h. the brakes can be released again, provided however that the driver has operated the "acknowledgment" switch, which is pedal actuated; normally he would do that on hearing the warning. The driver can continue through the block section unimpeded if he nowhere exceeds 45 m.p.h. If he does exceed it the whistle will again sound and he must apply the brakes as before, or be stopped automatically. On entering the next section the process will be repeated but with a 30 m.p.h. limit on the speed. While these arrangements do not provide complete protection against every circumstance, such as the train ahead being stopped not far beyond the entrance to the next section, they are held to provide valuable new guarantees against failure of the human element without unduly restricting train operation. The control of the train is left in the driver's hands, provided he is alert and acts within the prescribed time after a change of signal aspect. The speed limit on the restricting indication is 20 m.p.h. but the "stop and proceed" rule prescribes a maximum of 15.

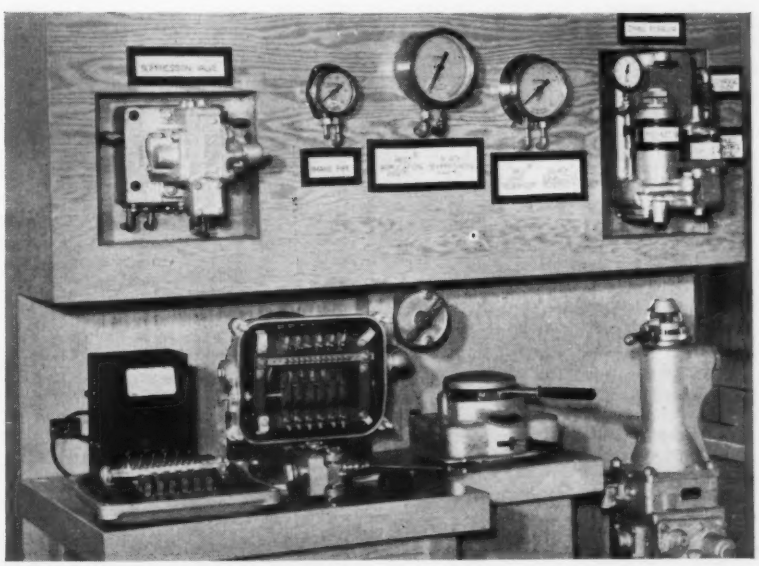
Confidence in Installation

Mr. White remarks that some enginemen felt the introduction of the speed control to be an affront to their ability to handle their trains safely, but this feeling has changed and it is realised that it is provided for their protection as well as that of passengers. The reason for bringing a train to a stop—or very nearly—on a driver's failure to acknowledge was that he might be incapacitated in some manner—asleep, ill or dead—and yet the speed might already be low enough to cause no brake application to start, giving a misleading impression that the train was being correctly and consciously controlled. He points out also that there is a small sacrifice in scheduled running time as the signalled limits must be adhered to, whereas without the control system they would often be somewhat exceeded, at least during part of the approach to the "stop" indication. Some sacrifice had however to be made in order to gain the desired extra safety and no real difficulty has been experienced in this respect.

As the number of fitted locomotives increased so the number of operations of the speed control showed a steady decrease, with few exceptions; the following figures are of interest in this respect:—

Date	Number of locomotives	Speed control actuations	Percentage due to human failure
Feb., '52 ...	90	38	80
May, '52 ...	184	44	73
Aug., '52 ...	260	34	48
Nov., '52 ...	327	30	55
Feb., '53 ...	355	32	25
May, '53 ...	388	47	30

The men became gradually accustomed to running with the equipment and had an increasing chance of being required to drive a fitted engine. The authorities express themselves as well satisfied with the speed control which, without seriously affecting the train schedules, offers increased safety while at the same time, as Mr. White remarks, leaving "the control of the train in the hands of the engineman, provided the train is handled according to the rules of the railroad."



Enlarged view of cab apparatus including driver's brake and other air valves, pressure gauges, timing valve, and circuit controllers

Reconstruction of Adamsdown Footbridge, Cardiff

Economical design for long spans

The new trestle and one of the 105-ft. tied arch spans

THE Adamsdown footbridge, crossing the Western Region main lines and siding a short distance east of Cardiff General Station, was reconstructed in March this year. There are two spans of 105 ft. 9 in. between centres of bearings and one short one of 26 ft. The width of the footway is 6 ft. The adoption of welded mild steel arch ribs with stiffened deck ties for the longer spans is of particular interest because the weight of steelwork in the new spans, designed to carry the same loading of 100 lb. to the sq. ft., is 40 per cent less than it was in the Warren truss girders of the former riveted mild steel spans. This saving in steel is a result of the improved design made possible through the use of arc welding for the fabrication of the steelwork.

Construction of Arches

The weight of steelwork in each span is 12 tons. The parabolic arch ribs have a rise of 11 ft. 9⅜ in. at the centre. Each rib consists of a single 8 in. × 8 in. × ⅝ in. angle, fabricated in straight chords butt-welded at each panel point at which connection to the tie-beams is effected by 2½ in. × ½ in. × ⅜ in. angles in the plane of the chords. The tie beams, 18 in. × 6 in. steel joists, carry a reinforced concrete deck, 6¾ inches thick at the crown of the footway and diminishing to 6 inches thick at the sides where holes are provided for drainage.

Each span, supported on welded mild steel knuckle and roller bearings, is independent, and expansion joints are provided across the footway at the ends. The parapets are of corrugated steel sheeting secured to a framework of steel angles bolted to the tie beams.

The whole of the welded fabrication was carried out in the workshops of the steelwork suppliers and all field joints are bolted. There are four bolted butt joints in the length of each rib, and the bracings between, as well as the hangers, are bolted to gussets welded to the rib angles.

The tie-beams were made in three pieces and the joints are bolted. The whole of the reinforced concrete deck, except for short lengths opposite the field joints in the beams, was cast before the spans were put together on site. Each span was assembled across the railway tracks during weekend occupations and was then lifted into position by two cranes.

The bridge was constructed under the direction of the Civil Engineer of the Western Region. Steelwork was fabricated by the Fairfield Shipbuilding & Engineering Co. Ltd., of Chepstow, and the erection, including the casting of the concrete decking, was carried out by railway labour under the direction of the District Engineer, Newport.

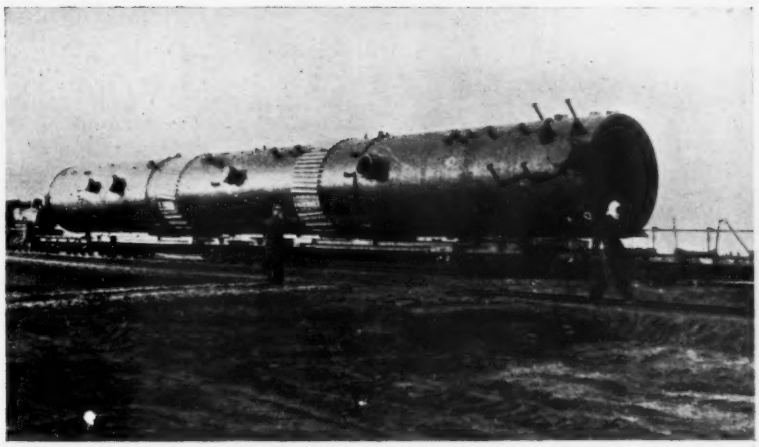
One of the spans under construction at the Maker's Works

ARTS AND CRAFTS EXHIBITION.—The first Arts and Crafts Exhibition by British Railways London Midland Region staff was opened by Mr. J. W. Watkins, Chief Regional Manager, at Camden Road station on May 10. Among the 230 entries from all parts of the Region were oil paintings, models, sketches, photographs, embroidery, knitwear, wood and metalwork, sculpture, and toys.

CLOSING OF L.M.R. DEPOTS AND SIDINGS.—Heather & Ibstock Goods Depot between Shackerstone and Hugglescote Junction, London Midland Region, will be closed for all traffic, except private siding, on and from June 7. Alternative arrangements have been made for dealing with parcels and passenger train merchandise, also freight traffic. On and from the same date Irwell Vale sidings, near Ewood Bridge, Lancashire, will be closed for all traffic.

Exceptional Loads on Metre-Gauge Line

Movement over Iraqi State Railways metre-gauge line of oil refinery vacuum and cracking towers



Crude cracking tower, length 115 ft., the longest piece of equipment conveyed

THE Iraqi State Railways were asked recently to move three steel towers of exceptional size and weight from the wharves at Basra to the Government oil refinery at Daura, on the outskirts of Baghdad. A fourth tower, also of exceptional size and weight, was expected to arrive at Basra by sea subsequently.

The towers are of different sizes and shapes, and, being of welded construction throughout, have had to be imported in one piece. The longest is 115 ft. from end to end, 11 ft. in dia., and weighs 39¼ tons. The heaviest weighs 43¾ tons and is 110 ft. long. Although not the heaviest loads to have been transported over the metre-gauge section of the system, they are longer than any heavy loads previously moved.

The vacuum tower shown in the illustration is claimed to be one of the widest loads ever carried on a metre-gauge railway. The dia. is 14 ft. 2 in., length 67 ft., and weight 32½ tons. Height above rail level, when loaded on a wagon designed and constructed in the Iraqi State Railway Workshops at Baghdad, and specially adapted to take this load, was 17 ft. 6 in.

On the wharf at Maqil, where the Port Directorate floating crane was used for loading, power cuts of short duration had to be made to permit high-tension power lines to be lifted and telephone and telegraph wires were propped up as a temporary measure to enable the load to pass.

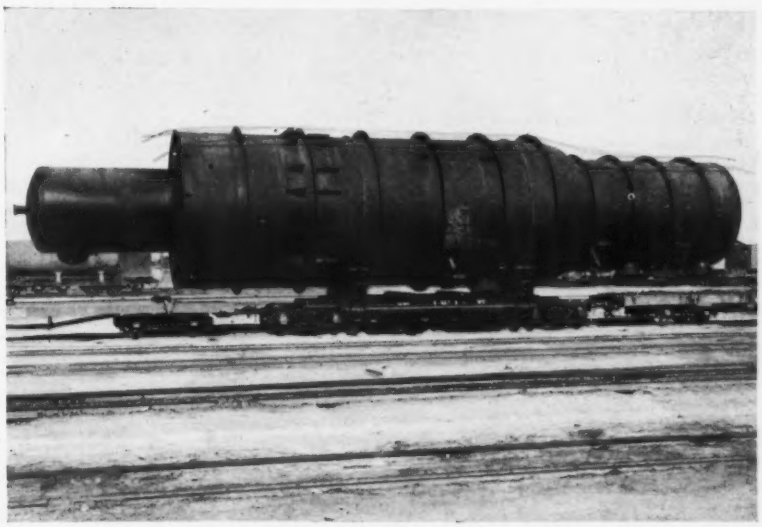
Obstacles on the main line, such as power line poles, railway signals, and light standards were temporarily removed. A minor diversion of the track at Diwaniyah also was necessary, and the new road bridge at Daura was left undecked until after the load had passed.

Speed and Weather Restrictions

The superelevation of the outer rail on a sharp curve just north of Jalibah presented another problem. Special precautions had to be taken, and here movement was made subject to fair weather prevailing. Speed was restricted to a maximum of 15 m.p.h. and only daylight running was permitted. In consequence it took three days to haul the tower the six miles from the wharf to the refinery site.

The crude cracking tower, also depicted, though less difficult to transport, presented other problems. This was the longest (115 ft.), and the same restrictions with regard to speed and daylight running had to be observed during its transit from the Basra wharves to Daura.

Both towers have since been erected at the oil refinery site.



Vacuum tower of 14 ft. 2 in. dia., length 67 ft. and height above rail level 17 ft. 6 in. mounted on specially constructed wagon

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SOUTHERN REGION LECTURE & DEBATING SOCIETY: VISIT TO YORK.—On April 30 and May 1 a party of 20 members of the Southern Region Lecture & Debating Society visited York at the invitation of the North Eastern Region Federation of Railway Lecture & Debating Societies. On Friday evening a debate took place at the Railway Institute, when the Federation speakers moved "That the influence of London on the construction, development and operation of British Railways has on the whole been disadvantageous," and the Southern Region speakers opposed the motion. Mr. A. P. Hunter, Divisional Operating Superintendent, North Eastern Region, York, was in the chair. Mr. W. E. Hancox, Chairman of the Southern Region Society, expressed thanks for the opportunity afforded to his members to visit York. He also referred to the recent "Fiftieth birthday" celebrations of the York Railway Lecture & Debating Society, and as a token of the friendship between the Debating Societies of the two Regions, and in order to mark the occasion he presented a suitably inscribed Gavel and Block to the York Society. Mr. H. M. Lattimer, Chairman of the York Society, in accepting the gift, expressed his appreciation and referred to the cordial relations existing between the Debating Society members of the Southern and North Eastern Regions. Mr. C. Cooper, Regional Staff Officer, North Eastern Region, York, proposed a vote of thanks to the speakers and to the Chairman. On the Saturday morning and afternoon the Southern Region members paid visits to the new York signal box, the two Railway museums, York Minster, and the Castle Museum.

Diesel Working on the U.T.A. Belfast-Bangor Line

Improvements in operation using three-car sets

The seven three-car trains outside Belfast Queens Quay Station

THE three-car diesel train set which left the Ulster Transport Authority Belfast Workshops on April 13 completed the rolling stock necessary to deal with passenger traffic by railway between Belfast and Bangor, including peak holiday periods. In all, seven six-coach diesel trains are now in service, and the Belfast Queens Quay to Bangor line of the former Belfast & County Down Railway has achieved the distinction of being the first section of railway in the British Isles to be completely dieselised. The last steam operated passenger train ran on November 27, 1953.

Problems connected with the conversion began to be studied early in 1950, and by July, 1951, an experimental unit was ready for trials. The success of the preliminary experiment was soon evident, and the next stage was realised in May, 1952, when the first six-coach diesel train was put into service. Since then there has been a regular output of three-coach sets every two months from the U.T.A. works at Duncrue Street, bringing the diesel trains up to the required number in the shortest possible time.

Concurrently with the production of the diesel trains, the normal construction of buses and freight vehicles was carried out at the works without interruption. The methods adopted in construction of the diesel trains ensured that local employment benefited to the maximum.

Since dieselisation great enthusiasm has been maintained by the operating staff for the new form of traction; drivers and guards have quickly adapted themselves to the change and so contributed much to the success of the project.

The Bangor line was eminently suitable for complete operation by multi-engine diesel trains because of its double track, comparatively dense population, and little goods traffic. During the period of the winter train service diesel trains run approximately 7,000 miles a week, and carry over 9,000 passengers a day. In the summer the figures are about 8,000 miles a week and 11,000 passengers per day.

Acceleration

Advantages gained by working of the new diesel trains include more economical and flexible operation, as a three-coach set can be run as a separate train during off-peak periods. The improvements in speed are now well established and the majority of the old steam-train running times have been reduced by five min. The frequency of services has been increased. Turnround time at terminals is reduced to a minimum. Compared with steam traction the greater acceleration produces considerably faster timings without resorting to high top speeds, and this results in all over smoother and more comfortable running.

A further advance in smooth running with further economy will be attained soon, when welding of the track will eliminate many of the existing joints. Track upkeep is less costly under diesel running, as a much reduced amount of maintenance is needed because axle loads are much lighter than those of steam trains.

VICKERS LIMITED: CAPITALISATION OF RESERVES.—An extraordinary general meeting of Vickers Limited is to be held in London on June 9 to consider the capitalisation of £12,315,484 from the £15,000,000 available in the reserve account. The directors recommend that this sum be applied in paying up in full 12,315,484 ordinary shares of £1 each for distribution amongst ordinary stockholders. The ordinary shares will then be converted into stock so that each shareholder will own two £1 stock units for each £1 unit how held. To provide the additional ordinary shares and to leave an adequate margin of unused shares it is proposed to raise the authorised share capital to £45,000 000 by the creation of 18,500,000 new ordinary shares of £1 each.

NEW WOLF ELECTRIC BELT SANDER.—Wolf Electric Tools Limited, has recently added to their range of portable machines with a heavy-duty portable belt sander, type BS3. The machine is fitted with a 3 in. × 24 in. belt sander, and is said to be accurate and easy to operate. Power is provided by a motor of special Wolf design, and the machine runs at 1,200 ft./min. The design permits working flush to skirtings and so on, and a built-in dust extractor system is operated by a double-sided fan on the motor. One set of blades forms the normal ventilation fan, and the other provides a powerful suction, which removes dust from the rear end of the belt. The dust bag, conveniently mounted on the outlet nozzle, is easily removed for emptying. The armature is dynamically balanced, and insulation is flash tested to 1,250V.

REPLACEMENT OF BRIDGE AT PINNER.—A new bridge at Pinner, built up on trestles alongside the old type iron bridge which it replaces, was rolled into place on May 30. The train service between Northwood and Pinner stations was suspended until 8.15 p.m. and special buses were run between these two stations to carry railway passengers. The times of certain other trains on the Metropolitan and Eastern Region lines were also affected by the suspension. The reconstruction of the bridge has involved rebuilding the abutments on which the bridge rests to allow for the future widening at Chapel Lane planned by Harrow Council. The work was started last July and has been carried out in six eight-week stages to avoid interfering with the train services. Space adjoining the bridge on the village side is so restricted that the old bridge could not be rolled out. As a result the old bridge had to be cut away, piece by piece, with oxy-acetylene cutters and loaded by mobile railway cranes into trucks waiting on the line on either side of the bridge. The site was clear by 11 a.m. on May 30 for engineers to roll in the new 200-ton bridge with its 67-ft. girder span. The bridge was winched into position on steel ball-bearings running along a prepared track. An unusual sight on the Sunday was a number of trains running between Northwood and Rickmansworth stations with a steam engine at either end. This was done to cut out delay in the special reversing of trains at Northwood station while the bridge work was in progress.

The International Railway Congress

A committee of the Sixteenth International Railway Congress, held in London from May 19 to 26, in session at Church House

Congress delegates at Dartmeet during the excursion to the West of England arranged in conjunction with British Railways, Western Region. Included in the group are (left to right) Monsieur M. de Vos, President of the International Railway Congress Association; Mr. H. G. Bowles, Principal Assistant to the Chief Regional Manager, Western Region; Monsieur P. Ghilain, Secretary General of the I.R.C.A.; and Monsieur Dorges, Chief of the French Government delegation

Congress Delegates on Technical Visits

At the Wimbledon substation, on the inspection of the Southern Region change of frequency scheme

Inspecting the locomotive test plant in the British Railways testing plant at Rugby, London Midland Region

Delegates at Swindon Locomotive Works, with officers of the Western Region

RAILWAY NEWS SECTION

PERSONAL

Mr. J. N. Turner, Chief Statistical Officer, Western Australian Government Railways, has been appointed Comptroller of the Accounts & Audit Branch.

Mr. T. E. H. King, District Traffic Manager., Wellington, New Zealand Railways, has retired after 40 years of railway service. He has been succeeded by Mr. K. D. Croft, who has been engaged on special duties in the District Traffic Manager's office at Auckland.

The following were formally appointed Honorary Members of the Permanent Commission of the International Railway Congress Association at the final meeting of the Permanent Commission on May 26:—

Monsieur P. Ghilain, Mr. Ranald J. Harvey, and the Rt. Hon. Lord Hurcomb.

Mr. J. Royston, Assistant Divisional Operating Superintendent (Western), Eastern Region, British Railways, has been appointed Divisional Operating Superintendent, Manchester, London Midland Region.

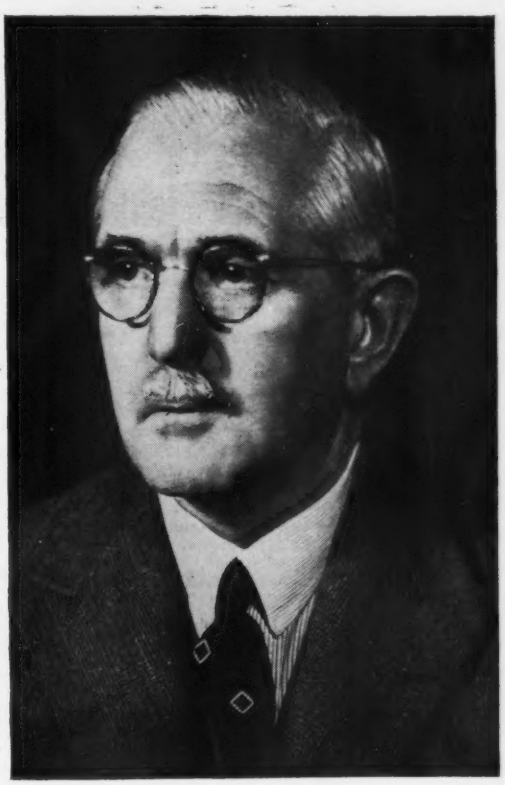
Mr. H. C. Walton, General Secretary, Railway Benevolent Institution, retires on June 30. He will be succeeded by Mr. C. H. Cowtan.

The following elections and executive changes have been announced by Montreal Locomotive Works Limited:—

Messrs. W. A. Arbucle, M. W. Mackenzie, Colin W. Webster, and William J. Niles have been elected Directors of the company. They fill vacancies caused by the resignation of Messrs. Herman Press, Carl A. Sundberg, James D. Vaughan, and Duncan W. Fraser.

Mr. P. T. Egbert has been appointed Chairman & President, succeeding Mr. Duncan W. Fraser; Mr. John J. Norris becomes Comptroller in place of Mr. James D. Vaughan, who will continue as Comptroller of A.L.C.O., and Mr. D. W. Cameron becomes Vice-President of the company.

Sir Arthur Griffin, K.C.I.E., O.B.E., B.Eng., Chairman, Rhodesia Railways Limited, who, as recorded in our May 21 issue, retired on May 18, went to India in 1911, where he was posted to the North Western Railway. As an officer in the Royal Engineers Special Reserve, he was recalled to military duty in 1914. In 1916, he was transferred to the Mesopotamian front, where he served under the Railway Directorate, and was appointed a Deputy Assistant Director of Railways. In 1918, he was transferred to the War Office for work in connection with the Transportation Commission to the Peace Conference in Paris. His services were lent to the Civil Government of Mesopotamia in 1920, where he served as Deputy-Director of Railways until June 1924, and subsequently as Director. During his war service Sir Arthur Griffin was twice mentioned in despatches; he was awarded the O.B.E. (Military) in January, 1919. He returned to India in 1925, and was appointed Divisional Engineer, Karachi, North Western Railway; later he was placed on special duty there in connection with the design and layout of railways in the port area. In 1930, he was appointed Principal of the Walton Training School for N.W.R. staff. For two periods—July-September, 1931, and April-November, 1933—he officiated as Deputy Agent of that system. In November, 1934, he was made Divisional Superintendent at Rawalpindi, and two years later at Delhi. In May, 1938, he was appointed Secretary of the Indian Railway Board, which position he relinquished to become General Manager, N.W.R., in 1940. Sir Arthur Griffin received his knighthood in 1943. He was appointed Chief Commissioner of Railways in September, 1944. From August to October, 1945, Sir Arthur Griffin officiated for Sir Edward Benthall, while the latter was on leave, as Member for War Transport of the Viceroy's Executive Council. He was made a K.C.I.E. in 1946, and is an Officer of the Order of St. John of Jerusalem. In 1947, Sir Arthur Griffin was elected a Director of Rhodesia Railways Limited, and, in April of the same year, he became General Manager & Resident Director in Rhodesia. In 1952, became Chairman of Rhodesia Railways Limited.



Sir Arthur Griffin

Chairman, Rhodesia Railways Limited, 1952-54

Mr. H. J. Moyser has been appointed Chairman of a new company formed by B.S.A. Tools Limited, entitled Precision Alloy Castings (Birmingham) Limited, for the development and manufacture of precision alloy steel castings. Mr. H. P. Potts has been appointed Managing Director.

Mr. Frank Billington, Secretary of the L.M.S. Railway Hospital Fund, is retiring at the end of this month. He will be succeeded as Secretary by Mr. F. Beeston, at present Assistant Secretary of the Fund. At Blackpool on May 28 he was presented with a cheque by Mr. R. Simpson, Regional Staff Officer, London Midland Region, British Railways, and the Mayor of Blackpool. The money had been subscribed by members of the L.M.S. Railway Hospital Fund as an appreciation of Mr. Billington's manifold activities on behalf of the Hospital Fund during the last 30 years.

Mr. J. F. A. Baker, Deputy Chief Engineer, Ministry of Transport and Civil Aviation, has been appointed Chief Engineer, Highways, in succession to Mr. E. B. Hugh-Jones, C.B., M.C., who is retiring on June 30.

Mr. T. W. Polding, District Passenger Superintendent, Leeds, North Eastern Region, British Railways, has been appointed District Passenger Superintendent, Manchester, London, Midland Region.

Mr. H. Irwin, B.Sc.Tech., M.I.Mech.E., Works Manager & Director of Triplex (Northern), Limited, has been elected Chairman of the North Western branch of the Institution of Mechanical Engineers for the current year.

We regret to record the death on May 28, at the age of 68, of Mr. Thomas Cooper, M.I.Loco.E., formerly Locomotive & Carriage Superintendent, Bombay, Baroda & Central India Railway. The funeral took place at Glasgow Crematorium on May 31.

Mr. N. W. Porteous, A.M.I.Mech.E., M.I.Loco.E., Assistant Chief Mechanical Engineer, Sudan Railways, who, as recorded in our May 28 issue, is retiring, received railway training on the North Eastern Railway until 1926, when he entered industry. In 1929 he joined the Egyptian State Railways as Technical Office Assistant, in which capacity he was engaged largely on the Abu-ZaaBal New Locomotive Works, and played a prominent part in the creation of the E.S.R. T. & T. Transport Museum which was opened in 1933. In 1935, Mr. Porteous joined the Nizam's State Railway, India, on which system he served for ten years as Assistant Locomotive Superintendent on both Running and Works sides, and as P.A., Technical to the Locomotive & Carriage Superintendent. He retired from the Nizam's State Railway in 1947 after

Mr. N. W. Porteous

Assistant Chief Mechanical Engineer, Sudan Railways, 1951-54

Mr. H. S. Chapman

Treasurer, London Transport Executive, who has retired

Mr. H. W. Aldridge

Appointed Treasurer, London Transport Executive

serving as Works Manager, Locomotive, Carriage & Wagon, for the last three years. He entered Sudan Railways service in 1947 as Works Manager, becoming Assistant Chief Mechanical Engineer in January, 1951. Mr. Porteous represented the Sudan Railways at the Colonial Office Conference on Standardisation of Mechanical Equipment in 1952. He is now joining the technical staff of the Drewry Car Co. Ltd.

The following staff changes are announced by London Midland Region, British Railways:—

Mr. J. Pollard, Assistant District Operating Superintendent, London (Midland), to be Assistant District Operating Superintendent, London (Western).

Mr. N. R. A. Paton, Assistant District Operating Superintendent, Manchester (Ex-Eastern Region), to be Assistant District Operating Superintendent, Nottingham (Ex-Eastern Region).

Mr. J. Hopwood, Assistant to District Operating Superintendent, Barrow, to be Assistant District Operating Superintendent, Barrow.

Mr. T. Brackley, Head Office Inspector, Divisional Operating Superintendent's Office, Derby, to be Yardmaster/Goods Agent, Hasland.

Mr. R. H. Walker, Head of Development & Special Travel Section, District Commercial Superintendent's Office, Middlesbrough, to be Goods Agent, Carlisle.

Mr. F. W. Wright, Head Office Inspector, Commercial Superintendent's Office, Euston, to be Goods Agent, Loughborough.

Mr. W. J. Teague, Yardmaster, Salford (Windsor Bridge), to be Stationmaster & Yardmaster, Miles Platting and Park.

Mr. J. McLeish, Goods Agent, Keighley (North Eastern Region), to be Goods Agent, Blackburn.

Mr. H. W. Davis, Goods Agent, Falcon Lane (i/c Wandsworth Road), to be Goods Agent, St. Albans.

Mr. F. A. Worsfold, Assistant Secretary, Mr. I. Spriggs, Superintendent of North Works, and Mr. H. Kirkham, Chief Assistant Buyer, Leyland Motors Limited, have retired, after a total of 110 years of service with the company.

Mr. H. S. Chapman, A.M.Inst.T., Treasurer of London Transport Executive, who, as recorded in our May 28 issue, has retired after 50 years of railway service, was born at Catford in May, 1890, and entered the service of the Metropolitan Railway in 1904, being appointed to the Registration Department. He was made Registrar in 1922, and, four years later, he was appointed Chief Clerk to the Secretary, becoming Secretary on January 1, 1929. After the formation of the L.P.T.B., Mr. Chapman was engaged in the winding-up of the Metropolitan Railway Company, and, in 1934, he became Public Information Officer of the L.P.T.B. He was appointed Assistant Secretary of the Board in 1935, and, in 1947, Assistant Secretary to the London Transport Executive. He was subsequently appointed Treasurer of the L.T.E. Mr. Chapman has been Secretary of the East London Railway Joint Committee and of the Hammersmith & City Railway Joint Committee.

Mr. A. H. Bell, British Railways General Agent for Switzerland, has recently been accorded the insignia of an Officer of the "Mérite Agricole," a French Government decoration. This decoration has been given to Mr. Bell in recognition of the special interest that he took in prewar days in the encouragement and development of horticultural trade between this country and France.

Mr. R. H. Unwin, until recently a Director of Ambrose Shardlow & Co. Ltd., has been appointed Export Manager of the Newall Engineering Co. Ltd.

Mr. H. W. Aldridge, A.M.Inst.T., Deputy to the Treasurer, who, as recorded in our May 28 issue, has been appointed an Officer of the Executive with the title of Treasurer, is 55, and entered the service of the Metropo'itan Railway Company in 1913. He was appointed Chief Clerk to the Secretary of that company in 1929. On the formation of the London Passenger Transport Board in 1933, Mr. Aldridge became responsible for the control of the general section of the Treasurer's office. In 1939, he took charge of the Organisation & Methods Section and, in 1944, was appointed an administrative assistant to his present post, being promoted Principal Executive Assistant in 1949. Mr. Aldridge is a Brunel medallist of the London School of Economics. He is Secretary of the Metropolitan Railway Provident Savings Bank, and Honorary Treasurer of the London Transport National Savings Group. His new appointment takes effect from May 24.

We regret to record the death, at the age of 59, of Mr. D. D. Hawley, Sales Director of Hadfields Limited.

Mr. R. G. Hull, Manager of the Northern Aluminium Co. Ltd.'s Manchester Sales Office, is retiring today after over 25 years of service. He is succeeded at Manchester by Mr. D. A. Corbett-Thompson from the company's London Sales Office.

Sir Cullum Welch, O.B.E., M.C., has joined the board of C. C. Wakefield & Co. Ltd. He has been the company's legal adviser for over 25 years. Sir Cullum succeeds upon the resignation, at the age of 73, of Mr. Holland Young Blades, who has served Wakefield ever since the company's formation 55 years ago.

Institute of Transport

Nine Members and one Associate Member retired from the Institute of Transport Council on September 30, 1954, and to fill the vacancies the Council has nominated the following:—

Messrs. E. W. I. Arkle, Commercial Superintendent, London (Midland Region, British Railways; R. P. Beddow, Director, British Electric Traction Co. Ltd.; W. Bray, Sales Planning Manager, British Overseas Airways Corporation; A. B. Findlay, General Manager, Leeds City Transport Department; F. D. M. Harding, O.B.E., General Manager, Pullman Car Co. Ltd.; H. W. Howard, Assistant (Claims & Salvage) to Commercial Superintendent, Western Region, British Railways; A. J. Pearson, Chief Officer (Special Duties), British Transport Commission; R. E. Sinfield, Continental Superintendent, Southern Region, British Railways; G. W. Quick Smith, Member of the Board of Management, British Road Services; J. W. Swann (Associate Member), Traffic Superintendent (Scotland), British European Airways Corporation.

Indian State Railways Dinner

Mr. W. G. Latham on present conditions on railways in India: the Five-Year Plan

The annual reunion and dinner of the Indian State Railways (India and Pakistan) was held at the Rembrandt Hotel, London, S.W.1, on May 31. The chair was taken by Mr. J. A. Bell, a former General Manager of the East Indian Railway.

The following were present:

Bengal Assam and Oudh & Tirhut: Messrs. J. H. Bavin, W. E. G. Bender, H. Birney, G. S. Bocquet, W. D. Craig, H. D. Creedy, H. F. Dennison, R. G. M. Dobbie, J. V. Elson, P. L. J. Hands, J. Hannah, H. E. Hypher, K. E. Leaver, J. D. Lewis, C. A. Mackey, W. Miller, D. A. Phillips, H. M. Read, G. A. Rowlerson, F. E. Sheppard, F. A. Smith, B. G. Smith, C. G. Sturt, H. A. Joscelyne.

Bombay, Baroda & Central India: C. H. P. Allen, E. C. Armitage, J. S. Bearcroft, Alan P. S. Bell, William Blake, A. L. Brice, C. G. Cotesworth, H. R. Eveleigh, P. O. Fox, Eric Gardner, J. N. A. James, K. T. Lomas, W. R. Maunder, J. W. Maye, B. H. Mayes, P. D. Mitton, W. J. A. Moore, W. E. Napper, H. J. Nichols, Major A. B. Rogers, Messrs. G. T. Simpson, G. Steers, H. C. Towers, A. W. Crips Villiers

Bengal Nagpur: Messrs. S. W. Bailey, A. H. Bishop, M. D. Cannell, H. V. S. Corks, P. F. Dennison, A. F. Desellas, J. E. Embleton, A. W. Gracie, W. E. C. Greenham, W. G. Hornett, G. St. G. Higginson, R. A. Leakey, D. W. R. Knighton, H. F. Kelland, R. A. Phillips, A. F. Tabraham, D. C. W. Tonkin, Venkatramayya, J. C. Walsh

East Indian: Messrs. J. A. Bell, N. Burns, A. Devon, C. F. Gilbert, R. C. Harvey, J. B. Hemsley, H. L. Kelly, T. T. Lambe, F. G. S. Martin, Sir R. Marriott, Messrs. H. W. Puttick, G. W. N. Rose, K. C. Sood, G. A. R. Trimming, Ul de Praser.

Great Indian Peninsula: Messrs. Anise Ahmed, S. Barber, H. H. C. Barton, A. J. Bayross, E. H. Blanchard, C. M. Cock, R. G. da Costa, W. N. Crimp, Sir George Cuffe, Messrs. E. L. Ensor, A. J. Frazer, T. L. Gotting, R. J. Harris, R. Horsfield, L. A. Hoyle, N. Padmanabhan, U. Prabharkar Rao, H. Rideau, C. I. Routh, E. C. B. Thornton, D. Welsh, Sir Leonard Wilson, Messrs. E. S. Woolridge, J. M. D. Wrench, K. S. Rajam.

Nizam's State and Jodhpur: Messrs. G. T. Hart, J. C. Lejeune, A. J. Pragnell, H. G. Tilden, S. Henry.

Madras & Southern Mahratta: Sir Godfrey Armstrong, Messrs. N. Carroll, W. Cathrow, W. J. Crow, A. M. Dent, W. G. Latham, R. de K. Maynard, C. W. Molle, E. Prefect, B. A. Spencer, D. O. Thomas, E. C. Buck, W. G. W. Reid.

North Western: Messrs. W. A. Anderson, B. C. L. Bean, P. S. A. Berridge, F. S. Bond, A. C. Brabson, B. C. Drummond, G. A. Dyke, G. J. Eades, T. G. R. Eagan, W. T. Everall, W. E. Gelson, C. E. Goldsmith, W. E. Grant, F. G. Griffith, W. A. Hewitt, J. C. Highet, H. Hinton-Cooper, H. W. Huggins, N. Johnson, T. H. B. Jones, Kundal Lal Bery, A. Johnson, M. Meldrum, Colonel D. McMullen, Messrs. E. L. Manico, B. Moody, J. W. Ogle, R. H. Patersen, G. A. Plank, V. J. Reynolds, A. O. Roberts, A. B. Robey, A. P. Sass, Shamshere Singh, Lt.-Colonel W. J. Sorby, Messrs. A. M. Sims, L. R. Stephens, W. Strang, E. B. N. Taylor, R. O. C. Thomson, J. S. Tritton, N. C. Watney, A. E. Wellby, F. M. G. Wheeler, C. E. Williams, Brigadier H. L. Woodhouse, Messrs. S. R. Woodmore, J. Wyse, H. N. Young.

South Indian: Messrs. C. H. Biddulph, H. J. Crane, P. H. S. Drew, A. C. Flower, C. E. Gayes, H. C. Hodgson, E. C. Lightbody, C. R. Martingell, F. S. Morris, C. A. Muirhead, W. R. Oaten, E. La V. Parisot, H. A. Reid, V. R. Riley, W. F. Sargisson, H. E. Thompson, C. A. White, F. J. Wright, and Honorary Member Sir William Stanier

Mr. Bell, after proposing the toast of the Queen, welcomed the guests, including Mr. F. C. Badhwar, Chairman of the Indian Railway Board. Reviewing the activities during the past twelve months, he mentioned with regret those who had passed away since they had met together for their dinner last year, including Mr. V. H. Boalth, Mr. D. Cardew, Mr. W. Hood, and Mr. J. A. Parker. He then introduced Mr. W. G. Latham as the officer most recently returned from service in that country.

Mr. Latham, proposing the toast of the railways of India and Pakistan, said that most of those present had left some memorial of themselves in India where they had spent the best part of their lives, and India had left something of itself in their hearts. They must be wondering how the country and people were faring.

Passenger Travel Improvements

Describing some of the changes that had taken place in recent years and some features of Indian railway activity of today, he mentioned the abolition of first class except for the air-conditioned accommodation, which was being augmented on two broad-gauge and being introduced on metre-gauge systems. At the other end of the scale, third class carriages were provided with fans and drinking water taps, and built to modern designs with rather more space per passenger than previously.

The most obvious development, Mr. Latham said, was a general improvement in station amenities. A big drive had been in progress for some years now to provide more paved platforms, more platform coverings, more electric lighting, water taps, iced water, waiting rooms, refreshment rooms and stalls. Many crores of rupees had been spent on these amenities, and results were beginning to show. Train speeds were slightly higher, and punctuality better than in the recent past.

Development Plans

After Partition in 1947, the Government of India started planning on wider lines, for the health, happiness and prosperity of the country as a whole. On the physical side, this resulted in the construction of a number of new industrial plants, hydro-electric works, and so on. To meet these developments, the railways had also to increase their efficiency and the first priority had been given to rehabilitation. This proved a formidable task, so that the target for the first Five-Year Plan (1951-56) had been to break the back of the job of overtaking these arrears. The railways' share of the Five-Year Plan amounted to £300 millions.

Rehabilitation was now well under way, and the emphasis was turning towards removal of bottle-necks. Perhaps the most spectacular works in this category were the new port at Kandla and the new Ganges bridge at Mokameh. The time had now come to integrate the efforts of the railways more closely with those of the other branches of the plan. Investigations were being made into requirements to meet the needs of India's expanding industrial economy, and to open up new country.

In the last few years, the rates of wages and conditions of service of the lower-paid railway employees had been considerably improved, and this had resulted in a very satisfactory absence of labour trouble. Trade unions, however, were active, and one of the main problems of supervisory and administrative staff on Indian railways was to establish and maintain a firm, tactful, and co-operative approach to organised labour, to obtain the best results from the staff. Another difficulty was the immense volume of paper work involved in looking after the staff.

Europeans in India

There were now perhaps only about a dozen U.K. citizens left on the Indian railways. Mr. Latham said he thought they were all reasonably happy in their work and very well treated by the Administration. Speaking for himself, he felt it had been a great honour to have been a railway officer during the period of gradual transition from British to Indian railway administration.

His service had been entirely in what was now the Republic of India, and he knew nothing of the conditions existing on the railways of Pakistan. He hoped, however, that in the future there would be plenty of co-operation and friendship between the staffs of the two systems to the mutual advantage and glory of both these great countries.

OVERCOMING LABOUR DIFFICULTIES IN THE WESTERN DIVISION.—Despite the unofficial strike of footplate staff in the Western Region which ended last week, a considerable degree of success was achieved in operating services. By the second week, approximately two-thirds of the full main line service was being operated into and out of Paddington daily. Main-line services were worse hit than local as the depots on strike were involved to a greater extent in main-line operation. Lack of shunting facilities caused some temporary suspension of restaurant car services and seat reservations in London trains. Cross-country main-line services were run almost in their entirety, whilst 75 per cent of the London and Bristol area suburban services were being run. The level of other traffic normally carried on passenger services including excursion arrangements had to be adjusted. Preference was given to milk, fish and letter mails. Because of the absence of the normal shunting facilities at stations and yards and the restricted number of train crews available, restrictions had had to be placed on the acceptance of general goods traffic which particularly affected stations in London, Bristol to Penzance, South and West Wales, and Banbury to Wolverhampton, so that priority could be given to important freight essential to the life of the country. As many as 450 long distance freight trains were being run daily out of a total of 639; preference was given to coal, iron and steel, and raw materials for heavy industries served by the Region. All deep-mine collieries in the Region with a few exceptions in the Llanelly area were fully supplied with empty wagons, and during the period May 16-31 the number of coal wagons moved from South Wales was 91,155, which is about the figure for recent weeks. Preference was given to movement of coal to large industrial works and public utilities. Movement of iron ore from the docks and from Oxfordshire to South Wales and the Midlands, and the corresponding movement of empty wagons in the other direction was not interrupted by the strike.

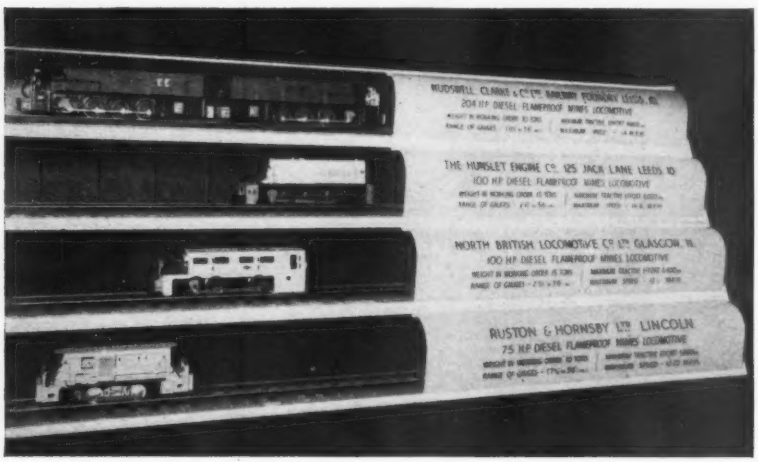
XUM

L.M.A. Underground Mines Locomotive Division

Cocktail party to delegates to National Association of Colliery Managers' Conference at Buxton

The members of the Underground Mines Locomotives Division of the Locomotive Manufacturers' Association of Great Britain gave a cocktail party to the delegates to the National Association of Colliery Managers' Conference at the Palace Hotel, Buxton, on June 2. Some 500 guests were present.

The guests were received by Mr. C. C. H. Wade, Chairman of the Internal Combustion Group of the L.M.A., and Mrs. Wade.


HUDSWELL CLARKE & Co. LTD. RAILWAY FOUNDRY LEEDS, 10.
204 H.P. DIESEL FLAMEPROOF MINES LOCOMOTIVE
THE HUNSLET ENGINE Co. 125 JACK LANE LEEDS 10
100 H.P. DIESEL FLAMEPROOF MINES LOCOMOTIVE
NORTH BRITISH LOCOMOTIVE Co. LTD. GLASGOW, N.
100 H.P. DIESEL FLAMEPROOF MINES LOCOMOTIVE
RUSTON & HORNSBY LTD. LINCOLN
75 H.P. DIESEL FLAMEPROOF MINES LOCOMOTIVE

Models displayed at the L.M.A. Underground Mines Locomotive Division cocktail party at Buxton

The Underground Mines Locomotives Division consists of the following four manufacturers of flameproof mines type diesel locomotives:—Hudswell, Clarke & Co. Ltd.; the Hunslet Engine Co. Ltd.; the North British Locomotive Co. Ltd.; and Ruston & Hornsby Limited. The members of the Division, besides being important suppliers of underground mines locomotives to the National Coal Board in this country, also export a large proportion of their products to overseas territories.

Display of Models

A working display of models specially built for this function was on view for the first time. These are electrically operated and built to a scale of 1 in. to 1 ft., being based on 3-ft. gauge full-size units.

The models, which are shown in the accompanying illustration, depict the following locomotives, products of member firms:—

Hudswell Clarke & Co. Ltd.: 204-h.p., 30-ton, max. tractive effort 16,600 lb.

Hunslet Engine Co. Ltd.: 100-h.p., 15-ton, max. tractive effort 8,000 lb.

North British Locomotive Co. Ltd.: 100-h.p., 15-ton, max. tractive effort 8,400 lb.

Ruston & Hornsby Limited: 75-h.p., 10-ton, max. tractive effort 5,600 lb.

Those present at the party included, besides members of the Association:—

Councillor A. Flint-Hartle, Mayor of Buxton; Sir Andrew Bryan, Member, Mr. E. H. Browne, Director-General of Production, National Coal Board; and Sir Harold Roberts, H.M. Chief Inspector of Mines, Ministry of Fuel & Power.

Centenary of Paddington Station

Commemorative plaque unveiled by Mr. A. S. Quartermaine

To mark the centenary of Paddington Station a tablet was unveiled on May 29 on No. 1 platform, by Mr. A. S. Quartermaine, a former Chief Engineer of the Great Western Railway and the Western Region. He was accompanied by Mr. F. A. Pope, Member, British Transport Commission; Mr. K. W. C. Grand, Chief Regional Manager, Western Region, and other railway officers; Mr. R. A. Allan, Member of Parliament for Paddington South; Alderman S. Howard Crosse, Mayor of Paddington; and Mr. W. H. Bentley, Town Clerk, Paddington.

The tablet, of polished Purbeck stone, 3 ft. × 2 ft. surrounded by a narrow frame of grey-green Welsh slate, is fixed to one of the original cast iron columns to the right of the entrance to the new passenger enquiry office. Inscribed on the tablet are the dates 1854 and 1954; below, and slightly inset, is a bronze plaque in low relief depicting the head and shoulders of Isambard Kingdom Brunel, in tall beaver hat, and with cigar. Beneath this bronze is an inscription cut in the stone which reads:

This Plaque was Unveiled
on 29th May 1954
To Commemorate the Centenary of
Paddington Station
Designed and Built by Isambard Kingdom Brunel
Engineer of the Great Western Railway.

At the foot of the panel, in bronze, is the coat of arms of the former Great Western Railway Company, the joined shields of the cities of London and Bristol.

Inception of Station

In 1851, sixteen years after the opening of the first section of the Great Western Railway, starting from a temporary terminus in Bishops Road, the directors authorised the plans for a new station and an hotel, much as they are in existence today. The station was planned by Brunel, with Digby Watt as architectural collaborator. Work began in 1852, and on January 16, 1854, the departure side was brought into use. In Brunel's words: "the difficulties of proceeding successfully with different portions of the new work on the site of old buildings, without interfering too much with the carrying on of the traffic in a station already far too small for the wants, have been very great." The arrival platforms were eventually opened on May 29, 1854, and the passenger arrangements transferred to the new station which had cost in all over £650,000.

Constructional Features

The interior of the main part of the station was 700 ft. long and 238 ft. wide, divided by columns giving three spans of 68 ft., 102 ft. and 68 ft., and crossed by transepts, 50 ft. wide, to permit of the use of large traversing frames. The roof consisted of wrought iron arched ribs with glass panels; Brunel adapted the design from Paxton's Crystal Palace. The columns carrying the roof were bolted down to masses of concrete to enable them to resist sideways pressure.

When the station was opened, there were four platforms and ten broad gauge lines. As at that time there was no circulating area—the present "Lawn"—the inner platforms were reached by retractable drawbridges. Interesting architectural features are the oriels overlooking No. 1 platform at first floor level and designed by Wyatt. Each consists of three ornate windows, serving only an ornamental purpose.

Because of Brunel's foresight this, with the addition of one platform in 1878 and two more in 1884 and 1893, all under the original roof, met all traffic requirements for more than 50 years. When at last extension became necessary, three new platforms with a new roof span, of 109 ft., on the arrival side were brought into use between 1913 and early 1916.

Subsequent reconstruction work of importance, all completed by the end of 1933, has included the provision of a new parcels depot, platform extensions and the development of "The Lawn", with the construction of a new roof over the circulating area, the remodelling of Bishops Road Station.

Mr. K. W. C. Grand, introducing Mr. Quartermaine, spoke of the genius of Brunel, who was undaunted by difficulties and who reduced problems to simplicity by clarity of thought. Paddington, he suggested, was the resting place of Brunel's great spirit. It was fitting that they had to unveil the memorial to Brunel one of his successors who last year was President of the Institute of Civil Engineers, Mr. A. S. Quartermaine, who had so eminently carried on the Brunel traditions.

Mr. Quartermaine said that Paddington

had something special about it that derived from the artistic and bold imagination and the engineering skill of its designer and constructor, who combined beauty in design with economy in construction. The three semi-elliptical arch spans, intersected by two transepts, forming the original roof were typical of Brunel's engineering structures of simple and graceful appearance. The structure had withstood the passage of time so well that no major repairs had been necessary other than the replacement of the original cast iron columns and some of the glazing.

Brunel's qualities of heart and courage, applied to the present Chief Regional Manager of the Western Region and the spirit of progress which the Great Western Railway inherited from Brunel remained today, and would lead the railway to further successes worthy of its first engineer. With that thought and feeling in mind, and with earnest good wishes for the future success of the station and the railway, he had the greatest pleasure in unveiling the plaque commemorating the centenary of the opening of Paddington Station and the man who built it, Isambard Kingdom Brunel.

The Congress and the Press

An important but unobtrusive aspect of the Sixteenth International Railway Congress which ended last week was the provision of information and facilities for the Press and broadcasting organisations. Because of the highly technical nature of most of its proceedings, and to the overshadowing news importance of the return of H.M. the Queen and of the labour troubles on British Railways, newspapers in Britain did not devote as much space to the Congress as might have been expected, though it was necessary to make full arrangements both for the British Press and for the more specialised requirements of the overseas Press.

These arrangements were planned well in advance in conjunction with the home Press organisations, the Foreign Press Association and kindred bodies, and the Church House authorities, and their successful operation drew praise, particularly from the visiting overseas journalists, who included representatives from Belgium, France, Germany, Portugal, Spain, Switzerland, and the U.S.A. Before and during the Congress, over 200 Press inquiries were dealt with, at first through the B.T.C. Press Office at Marylebone, and during the Congress itself through a special Press Room at Church House, continuously staffed while the Congress was in session. The opening session and the dinner on May 25 were attended by some 30 journalists.

A complete photographic record was compiled of the principal Congress sessions at Church House and of the outdoor events.

Wireless Broadcasts

A special feature was the provision at Church House of facilities for the B.B.C. and the Belgian Broadcasting organisation to record interviews with various of the national delegations.

These arrangements were directed, on behalf of the British Organising Commission, by Mr. J. H. Brebner, Chief Public Relations & Publicity Officer, B.T.C., working in collaboration with London Transport and, as regards the Regional visits, with the railway Regional Public Relations & Publicity Officers. The Press staff at Church House was provided jointly from the B.T.C. Public Relations organisation and that of London Transport.

B.T.C. Passenger Charges Scheme, 1954

Hearing before Transport Tribunal continued

The Transport Tribunal sat on May 26 to continue the hearing of the application by the British Transport Commission to raise charges under the B.T.C. Passenger Charges Scheme, 1954. The evidence-in-chief on behalf of the Commission was given last week, as reported in our issue of May 28. Nineteen organisations, including the London County Council, are opposing the introduction of the Scheme.

Mr. J. Reed, secretary of the London District Committee of the Amalgamated Engineering Union, said that his members could not afford to pay any more fare, and were now paying more than they should in comparison with their wage packets.

In reply to the chairman, Mr. Reed said the extra money should be found by the State, and one way was for the government to provide fuel free of tax.

Unfair Burden on London

Mr. F. A. Ruler, President of the Federation of Ratepayers in Kent, said the Scheme was inflationary, and placed an unfair burden on London. He suggested more efficient working of the railway; rational bus routes; rail fares not to exceed bus fares; and the maximum use of existing railway lines as ways of avoiding the need for increased fares.

Mr. Geoffrey Lawrence, Q.C., representing London County Council—chief objectors to the application—suggested that higher fares were a deterrent to increased traffic.

Questioning Mr. A. B. Valentine, a Member of the London Transport Executive, he said, " when you have placed on the shoulders of the public higher fares to which they react, how is it possible thereafter to say your traffic receipts provide any evidence of any downward trend in traffic entirely apart from any effect of the increased fares? "

Mr. Valentine said that he did not think it was possible.

Mr. Geoffrey Rippon, representing East London objectors to the proposed increase, asked if it was true that the increases in fares over three years had lost half a million passengers a day.

Mr. Valentine said the loss was partly due to the trend of declining traffic as well as fare increases.

Cheap Evening Fares

Replying to further questions on behalf of objectors, Mr. Valentine said that cheap evening fares had attracted 30 per cent more people since their introduction, but the executive was only making good about two-thirds of the money they lost by lowering fares, and could not break even until 50 per cent more people were using the cheap evening tickets.

Answering questions about the forthcoming replacement of London trolleybuses by a new type of oil bus, Mr. Valentine said that there were 1,750 trolleybuses and their replacement would probably start in about five years' time. A trolleybus held 70 people and a petrol bus 56, but the executive was experimenting with oil buses which it was hoped would seat 64. The new buses would probably cost about the same as the trolleybuses, and he thought that the financial position as a whole would " work out at about the same."

In answer to questions on London traffic speeds, Mr. Valentine said that if the speed of all buses could be increased by one mile an hour there would be a saving of about £2,000,000 a year in running costs.

Mr. P. G. James, Chief Financial Officer of the London Transport Executive, was cross-examined about capital expenditure by Mr. Rippon. Mr. Rippon said that a letter to *The Times* from Lord Hurcomb, former chairman of the British Transport Commission, on July 12, 1952, spoke of long-term proposals for railway improvements in London.

The letter had stated that preliminary work was then in hand on a scheme for lengthening platforms on the Southern Region to permit the operation of 10-car trains, and to reduce congestion on that Region's suburban lines in the South-East.

New Underground Railway

Among proposals for major new works to be given first priority, said the letter, was an underground railway linking Tottenham and Walthamstow districts with the West End, and providing a new link between Victoria, Oxford Circus and Kings Cross, and, in the South on the District Line, to Wimbledon.

Mr. James, replying, said: " There is not the slightest possibility of that railway being constructed and coming into operation for the next few years, and in any case it would be a long-term project and could not possibly affect the figures at present before the tribunal."

Mr. W. I. Winchester, Director of Budgets for the British Transport Commission, spent nearly three hours answering detailed questions by Mr. Lawrence (for the L.C.C.) on costing and budgeting in respect of London Transport and London lines of British Railways.

Mr. Lawrence said that it would be part of his case that the figure of £5,300,000, which the Commission said they required, was excessive. They were already very near the danger point of passenger resistance.

Mr. Stanley William Hill, accountant, first witness for the L.C.C., said there was no evidence of a basic decline having taken place in the early part of the year 1953, although there was no doubt that receipts had not come up to expectations. With passenger journeys it was possible to have the same number if people travelled shorter distances and walked part of the way, but if there was no decrease in the number of passenger journeys it would be a fairly reliable indication that there was no general downward trend. He had found no appreciable decrease in the number of passenger journeys. The number of passenger journeys for half of 1953 was above that of 1952, and it was only after the 1953 fares increase that a completely different picture was seen.

The hearing was continued.

Parliamentary Notes

Railway Facilities at Blaenau Ffestiniog

Mr. T. W. James (Merioneth—Lab.) on the motion for the Adjournment of the House of Commons on May 24 called attention to a unique railway arrangement found at Blaenau Ffestiniog, in his constituency, where the termini of two railway systems, within a few hundred yards of each other, were unconnected.

Mr. Hugh Molson (Joint Parliamentary Secretary to the Ministry of Transport &

Civil Aviation) said it had never been the view of any of the railway operators that large capital expenditure upon greatly increased facilities in Ffestiniog would ever be remunerative. The cost would be very large indeed. It was the considered view of the B.T.C.—a view shared by the companies operating those lines previously—that it would not be profitable to the Commission to carry out this large capital expenditure. The Commission was under an obligation to make certain that its transport concern was not worked at a loss.

Pullman Car Company

On the motion for the Adjournment of the House of Commons on May 27 Mr. William Teeling (Brighton Pavilion—C.) raised the question of the Pullman Car Company. He said there was considerable uncertainty whether the Pullman Car Company was being taken over or handed over to the British Transport Commission. The contract still had eight years to run. The company still had £500,000 in hand, and with a profit at the rate of £70,000 they were selling the concern for just over £700,000, so that the 206 cars were to be handed over to the commission for something like £200,000. If there was some reason, political or economic, why the company did not ask for a renewal of its contract, the Minister of Transport ought to make the fullest inquiries. Could it be that the Commission was jealous or nervous of having a competitor very much in its line of trade? If that was the case the Minister should see that the company was not being pressed. If it was inevitable that this should happen the Minister should give an assurance that the company's cars and trains were not only going to continue but with £500,000 to play with the service would be extended.

Mr. Alan Lennox-Boyd, Minister of Transport & Civil Aviation, said this was not a question of nationalisation. It was a negotiation entered into freely, and assuming he had the power to intervene he would not dream of using it. The directors were working on a franchise which expired in 1962 and had never asked the Commission to consider terms on which they could continue after that date. Mr. Teeling had his figures a little wrong. The total purchase consideration amounted to £1,148,500 made up by the taking over of £386,000 4½ per cent redeemable preference stock and £727,500 offered for the A and B shares, together with a small amount of £35,000 for other obligations which the company might be deemed to carry. The Commission had announced its intention to continue the Pullman car service and to give consideration to the extension of that facility to other lines throughout the country.

Questions in Parliament

Level Crossing Keepers

Mr. Hector Hughes (Aberdeen North—Lab.) on May 19 asked whether the Minister of Transport & Civil Aviation would give a general direction to the British Transport Commission to alter their present policy of dismissing level-crossing keepers and placing the responsibility of opening and closing gates on the engine fireman, in view of the unemployment caused and the fact that no economy was effected, since the extra consumption of fuel involved in stopping and starting trains outweighed the saving in wages.

Mr. Alan Lennox-Boyd stated in reply:—This is a matter for the British Transport Commission. The cost of the slight increase in fuel consumption resulting from the stopping and starting of the locomotive is much less than the wages that would have to be paid if crossing keepers were employed.

Mr. Hughes said that on the branch line from MacDuff to Inveramsay three level crossing keepers had been dismissed at a loss to British Railways of £1,965 12s. a year in order to save £450, so that was false economy. He asked if the Minister would now restore the crossing keepers.

Mr. Lennox-Boyd replied that if he took any such step he would be acting unconstitutionally. This was a matter which could safely be left to the commercial discretion of the Commission.

Nigerian Railway Employees

Mr. James Johnson (Rugby—Lab.) on May 19 asked in the House of Commons how many ex-Indian Government servants had been taken into the employment of the Nigerian Government.

Mr. Henry Hopkinson (Minister of State for Colonial Affairs) replied that 47 ex-Indian Government servants were employed by the Nigerian Government.

Mr. Johnson said that numbers of ex-Indian civil servants had been appointed to senior posts on the Nigerian Railways, and it was alleged that many of them had not even the qualifications to be assistant locomotive superintendents. That was obviously causing dissatisfaction among English employees.

Mr. Hopkinson said that 27 out of the total of 47 were employed by the Nigerian Railways, but this was the first complaint that he had heard about their qualifications.

Mr. Johnson asked if the Minister would look into it.

Mr. Hopkinson indicated assent.

Cost of Nationalised Boards

Sir Waldron Smithers (Orpington—C.) on May 20 inquired if the Prime Minister would recommend a Royal Commission before which evidence could be taken on oath with sittings held in public to inquire into the costs of the nationalised boards, and to report on ways in which economies could be made.

Sir Winston Churchill replied: A Royal Commission with evidence on oath is not the right kind of body for the examination of the nationalised industries. Following the debate of February 8 last about ways of increasing the opportunities of Parliament to scrutinise and discuss the affairs of the nationalised industries, the Government is considering what the next step shall be.

Directions to Railway Executive

In a written reply to Mr. Leslie Hale (Oldham West—Lab.), who had asked what directions he had given to the Railway Executive under his powers under the Transport Acts since October, 1951, Mr. Alan Lennox-Boyd (Minister of Transport & Civil Aviation) stated "None."

Railways in Kenya

Mr. James Johnson (Rugby—Lab.) on May 26 asked what steps were being taken to increase the efficiency of the railways in Kenya.

Mr. Oliver Lyttelton (Secretary of State for the Colonies) in a written reply stated that firm delivery dates had been arranged for the long-awaited new railway equipment and the United Kingdom manufacturers were being constantly pressed to adhere to and if possible to improve on the dates for the completion of orders. Coupled with new local works, the material now coming forward should raise the capacity of the port and railway to a satisfactory level by the end of 1955.

Sale of Transport Units

Mr. Ernest Davies (Enfield East—Lab) asked the Minister of Transport & Civil Aviation on May 26 which sections of the existing road haulage undertaking of the B.T.C. were being formed into companies with a view to the sale of their shares in accordance with Section 5 of the Transport Act, 1953, for which his approval had been sought because they consisted of more than 50 vehicles.

Mr. Alan Lennox-Boyd replied that his approval was not required for the formation of companies consisting of more than 50 vehicles.

Mr. Ernest Davies then asked in how many cases the Minister of Transport & Civil Aviation had given his approval, in accordance with Section 3 (3) of the Transport Act, 1953, for transport units offered for sale to include more than 50 vehicles.

Mr. Alan Lennox-Boyd replied that he had given approval for the sale of one transport unit including more than 50 vehicles, and one with an aggregate unladen weight exceeding 200 tons.

Staff & Labour Matters

Lodging Turns Dispute

The unofficial strike of footplate staff at depots on the Western Region of British Railways ended at midnight on May 29/30, 13 days after the dispute first started.

The decision to resume normal working was taken by delegates from the eight depots concerned after discussions lasting for several hours on May 28. On May 27, the Annual Conference of the A.S.L.E.F. meeting in London carried a resolution calling upon the Society's executive committee to negotiate with the B.T.C. for the total abolition of lodging turns; as a direct result of this resolution the representatives of the strikers decided to recommend a return to work.

Earlier in the week delegates from motive power depots in the Eastern and North Eastern Regions recommended footplate staff to stop work at midnight on May 29/30 unless the Commission withdrew all new lodging turns. The recommendation was considered by the men at depots concerned on Sunday, but was not supported, and the threatened strike did not develop. The decision not to withdraw their labour is stated to have been influenced by the resolution carried at the annual conference of the A.S.L.E.F. and also by the resumption of normal working in the Western Region.

CENTRAL ARGENTINE RAILWAY LIMITED.—The report of the joint liquidators of the Central Argentine Railway Limited for the year ended April 1, 1954, states that the inter-company payments arising from the agreement with the Argentine Government were made during the year under consideration. No success has yet been achieved in realising the assets held in the form of property in Buenos Aires. A second interim distribution at the rate of £2 12s. per £100 of 4½ per cent preference stock, £3 per £100 of 6 per cent cumulative preference stock, £1 14s. per £100 of consolidated ordinary stock, and £1 4s. per £100 of deferred stock, totalling £891,008.

Contracts & Tenders

The British Transport Commission has placed orders with the English Electric Co. Ltd., for 170 sets of equipment for 350 h.p. 0-6-0 diesel-electric shunting locomotives, 78 to be delivered next year and the remaining 92 in 1956. These locomotives will be built in British Railways workshops in 1955 and 1956. Of the first 78, 28 are to be built at Darlington and 50 at Derby. The building allocation for the remaining 92 will be announced later.

British Railways, London Midland Region, have placed the following contracts:—

Butterley Co. Ltd., Butterley: supply and erection of steelwork for a new cradle for No. 2 Slipway at Fleetwood Harbour

Leonard Fairclough Limited, London, S.W.1: clay digging and drainage between 126 miles 269 yards and 126 miles 750 yards on the up and down lines at Braunston & Willoughby on the former G.C. main line

John Leck & Son (Barrow) Limited, Barrow-in-Furness: reconstruction of the workshop for maintenance staff at Ramsden Dock basin, Barrow-in-Furness

British Challenge Glazing Company, London, E.15: patent glazing for the renewal of the roofs of No. 16 wheel shop and No. 19 smithy shop at Derby Locomotive Works

Manchester Slate Co. Ltd., Manchester: supply and fixing of R.P.M. sheeting for the renewal of the roof of No. 19 smithy shop at Derby Locomotive Works

Fried. Krupp Lokomotivfabrik, of Essen, is building five E.94 class Co-Co freight and two E.18 class 1-Do-1 express passenger single-phase electric locomotives for the German Federal Railway.

Ardeltwerke G.m.b.H., of Wilhelmshaven, has received an order from the Finnish State Railways for two steam-driven 25-ton breakdown cranes.

Clyde Industries Limited, of New South Wales, has received an order from the Commonwealth Railways of Australia for five 1,750 b.h.p. diesel-electric locomotives of 4 ft. 8½ in. gauge, and intended specifically for heavy coal trains on the new Stirling to Leigh Creek line now under construction.

S. P. Austin & Son, Sunderland, has received an order from the British Transport Commission for two single screw motor vessels for the Goole-Copenhagen service, of 1,100 tons each deadweight, with 80,000 cu. ft. of insulated space, including all three holds and tween decks. They will have accommodation for 12 passengers.

The propelling machinery, to be supplied by Ruston & Hornsby, Limited, will consist of a uni-directional engine of their type 9VOXM, connected to the propeller shaft by means of an oil operated reverse reduction gearbox. The machinery will be installed by S. P. Austin & Son.

The Special Register Information Service, Export Services Branch, Board of Trade states that the United Kingdom Trade Commissioner at Johannesburg reports that the Stores Department, South African Railways, is calling for tenders (Tender No. C.7756), for the supply of transformers in accordance with the following specification:—

General: Transformers shall be air-cooled and be designed for indoor service for wall mounting

Rating: Continuous maximum

Input and output: Phase, single; primary, 230 volts with tapping for 250 volts; secondary, 20 volts with tapping for 18 volts; frequency, 50 cycles; output, 0·1 kVA

Case: The transformer shall be enclosed in a sheet steel case

Core: The core shall be of non-ageing laminated sheet steel and shall be so assembled that hum is not noticeable

Windings: The transformer shall have separate primary and secondary windings insulated from each other. Windings shall be of double cotton covered wire vacuum impregnated or "Formex" insulated wire. Material used for insulation shall be neutral chemically

Terminals: Terminal posts shall be not less than ¼ in. in dia. and be provided with two hexagonal nuts and two washers, exclusive of holding down nuts. Terminal posts, nuts and washers shall be electro-plated. Terminal posts shall be mounted on a moulded base of approved material and shall be non-turnable and mounted on the front of the transformers. Primary and secondary terminals shall be well separated. Terminals shall be marked in accordance with British Standard Specification No. 794

Polarity of windings: All transformers shall be arranged so that the instantaneous polarities of corresponding leads shall be alike

Nameplate: A nameplate or nameplates showing the following particulars shall be attached to the transformer in a conspicuous position: (1) Manufacturer's name, (2) type, (3) serial number, (4) total kVA capacity, (5) frequency, (6) primary voltage, (7) voltage of secondary winding, (8) voltage diagram The voltage diagram shall show ampere capacity of secondary winding, the full load voltage and tap voltage. Alternatively, the voltage diagram may be supplied separately in the form of a linen print

Tests: Complete tests shall be made at the place of manufacture in accordance with British Standard Specification No. 794

Submission of details: Tenderers shall supply full details of the transformers offered and two copies of a drawing showing outline dimensions and arrangement of terminals. The overall dimensions shall not exceed 6¼ in. in height by 6¼ in. depth by 6¼ in. width.

Tenders should be sent in an envelope marked "Tender No. C.7756: Signal Lighting Transformers" and addressed to the Chairman of the Tender Board, P.O. Box 7784, Johannesburg. The closing date for the receipt of tenders is 9 a.m. on June 24.

A copy of the tender documents including specifications and conditions of contract is available on loan to United Kingdom firms on application to the Branch (Lacon House, Theobalds Road, London, W.C.2.).

The High Commission for India is inviting tenders for engine frames. Full details appear on page 647 under Official Notices.

The Special Register Information Service, Export Services Branch, Board of Trade, states that the United Kingdom Trade Commissioner at Johannesburg reports that the Stores Department, South African Railways, is calling for tenders (Tender No. C. 7656), for the supply of:—

(*a*) 100 connecting rods of approved alloy steel, to be completely machined and heat treated, but without bushes or other fittings

(*b*) 43 levers, consisting of 13 point levers, five shunt levers and 25 main signal levers

35 levers consisting of 12 point levers, 23 main signal levers

35 levers consisting of 11 point levers, one shunt lever, 23 main signal levers

51 levers consisting of 18 paint levers, six shunt levers, 27 main signal levers

The closing date for the receipt of tenders is June 24.

Tenders must be enclosed in a sealed envelope marked (*a*) "Tender No. B. 7882: For Connecting Rods"; and (*b*) "Tender No. C. 7656: for Power Lever Frames" and addressed to the Chairman of the Tender Board, P.O. Box 7784, Johannesburg.

A copy of the tender documents, including specifications and conditions of contract, is available for loan to United Kingdom firms in order of application to the Branch (Lacon House, Theobalds Road, London, W.C.1).

The Special Register Information Service of the Export Services Branch, Board of Trade, states that the United Kingdom Trade Commissioner at Delhi has reported that the Directorate General of Supplies & Disposals, is calling for tenders for:—

425 rams injector (cones delivery) 7 mm. for "YF" class

425 socket injector ram (cones combining) for "YF" class

425 cones injectors ram (cone steam) 7 mm. for "YF" class

The closing date for receipt of tenders is June 28. A set of the tender documents including conditions of contract, but not drawings, is available for loan to United Kingdom firms on application to the Branch (Lacon House, Theobalds Road, London, W.C.1).

The Special Register Information Service, Board of Trade, Export Services Branch, states that the British Embassy at Washington has reported that the General Services Administration, Washington, is calling for tenders (Invitation No. 1-EPN-7-14-54), for the supply of the following for India:—

Indian Railways Standard broad gauge four-wheel, type "O" open wagons

As above, but without the wheels and axle assemblies specified below

Wheels and axle assemblies for above with disc centre tyred wheels. The assemblies shall be ready for fitting under wagons and consist of two assemblies per set

Indian Railways Standard, metre gauge four-wheel, Type "MC," covered wagons

As above, but without the wheels and axle assemblies specified below

Wheels and axle assemblies for above with disc centre, tyred wheels. The assemblies shall be ready for fitting under wagons and consist of two assemblies per set.

The closing date for the receipt of tenders is 11 a.m. on July 14. They should be addressed to General Services Administration, Emergency Procurement Service, 7th and D Streets, S.W., Washington 25, D.C. Attention: Bid Room 7104, Invitation No. 1-EPN-7/14/54.

It is understood that the General Services Administration will accept quotations in letter form provided full details, etc., are given.

A copy of the tender documents including specifications and conditions of contracts but without drawings, is available for loan to United Kingdom firms in order of application to the Export Services Branch, Lacon House, Theobalds Road, London, W.C.1.

The Director General of Supplies & Disposals, New Delhi, is inviting tenders for:—

(*a*) 24 cam steam Lentz valve "RC," "HMC" and "NM" class

(*b*) 3,948 brake beam safety straps (m.g.) 987 brake equalising lever bracket (m.g.)

Tenders are to be submitted to the Director General of Industries & Supplies, Shahjahan Road (Section SRI), New Delhi, India, and quoting reference SRI/17166—D/IV for (*a*) and SRI/16165—E/II for (*b*), and will be received up to 10 a.m. on (*a*) June 10 and (*b*) June 11.

Forms of tender are only available for purchase in India from the Deputy Director General (Supplies), Directorate General of Supplies & Disposals, New Delhi, Director of Supplies & Disposals, Bombay or Calcutta, or the Deputy Director of Supplies & Disposals, Madras.

If the date for the receipt of tenders does not allow sufficieut time for tenderers to obtain tender forms from India, they may submit their quotation to India in their own letter form or by telegram so long as all essential particulars are given and provided they simultaneously apply for the tender forms and return them duly completed as quickly as possible on the basis of advance quotations already submitted.

A copy of the tender form can be examined at the India Store Department, 32-44, Edgware Road, London, W.2, on application to the "CDN" Branch and drawings can be seen at the offices of Hodges Bennett & Company, 59-60, Petty France, London, S.W.1, from whom copies may be obtained at a fixed price per sheet.

The Special Register Information Service, Board of Trade, Export Services Branch, states that the British Embassy at Cairo has supplied the following extract from the *Weekly Commercial Bulletin for Tenders*, No. 17, dated April 28, issued by the Egyptian Railways:—

Adjudications for rolling stock, machinery, shop machine tools and plant and electric equipment.

The General Manager, E.R.R., Cairo Station, has the honour to notify all manufacturing firms, export agents and local agents who may have interest in the E.R.R. Adjudications, that, commencing from July 1, 1954, only firms on the Administration's Register of approved suppliers will be allowed to quote for E.R.R. indents.

Interested establishments whose names are not yet recorded on the E.R.R. Register may therefore apply for inscription to the item or items within their range of production on the application form allotted, which is obtainable gratis on demand at the following addresses:—

The General Management
The General Manager, E.R.R., Cairo Station
The Inspector General
Mechanical Department
Saptia—Cairo

Application forms duly filled in and furnished with fiscal stamps value 50 milliemes shall be addressed to the General Manager, E.R.R.

MOVEMENT OF TOWER DIFFUSER.—Recently the Eastern Region arranged for a special out-of-gauge train from Ipswich Docks to Bury St. Edmunds to convey a tower diffuser in sections. The train consisted of three flatrol, seven lowmac and five common user wagons. The largest sections of the diffuser when loaded centrally on flatrol wagons produced a maximum width of 11 ft. 1½ in. between 6 ft. 6 in. and 7 ft. 6 in. from the rail and a maximum height of 13 ft. 4 in.

Notes and News

Vacancies for Technical Assistants.—A firm of electrical signalling contractors has vacancies for technical assistants, preferably with railway experience. See Official Notices on page 647.

Designers Required.—Applications are invited for the posts of designers, with experience in cars, commercial vehicles and railway rolling stock. See Official Notices on page 647.

Whitsuntide Trains on the L.M. Region.—The London Midland Region of British Railways will run 1,132 extra main line trains for Whitsun holidaymakers between June 3 and 9. This is over 100 more than last year. There will be 60 extra from Euston and 47 from St. Pancras to the Midlands, North and Scotland, and from these areas there will be 84 expresses to Euston and 60 to St. Pancras.

Norwegian Railway Centenary.—The bust of G. P. Bidder, engineer of the first railway in Norway, opened on January 1, 1854, was presented to Mr. H. E. Stokke, General Manager of the Norwegian State Railways, in a ceremony at the offices of *The Railway Gazette* on May 26. The occasion was the subject of editorial comment in our issue of May 14. The bust, by the sculptor Wyon, is the gift of Mr. C. E. R. Sherrington, who is shown in the accompanying illustration presenting it to Mr. Stokke.

Mr. C. E. R. Sherrington, presenting the bust of the engineer G. P. Bidder to Mr. H. E. Stokke, General Manager of the Norwegian State Railways

Westinghouse Brake & Signal Co. S.A. (Pty.) Ltd.—It is announced by the Westinghouse Brake & Signal Co. Ltd. that, in conjunction with Bellamy & Lambie (Pty.) Limited, of Johannesburg, the Company's agents in South Africa for railway brakes and signals, brakes for road vehicles, and pneumatic mining equipment, a new Company has been formed under the title of Westinghouse Brake & Signal Co. S.A. (Pty.) Ltd. The new Company will manufacture certain items of railway, road, and mining equipments, and provide test, service and spares facilities. The directors of the Company are Mr. A. R. Walwyn, Managing Director of Bellamy & Lambie (Pty.) Limited, Mr. N. V. Davies, Mr. J. Pryce, and Mr. M. W. Shorter, Managing Director of Westinghouse Brake & Signal Co. Ltd. in England.

Withdrawal of Passenger Service Between Finsbury Park and Alexandra Palace.—On and from July 5, the passenger service between Finsbury Park and Alexandra Palace will be withdrawn and Stroud Green, Crouch End, Highgate (Eastern Region), Cranley Gardens, Muswell Hill, and Alexandra Palace closed.

Willesden Exhibition Extended.—The exhibition of British Railways and London Transport locomotives, carriages, wagons, and engineering and signalling equipment at Willesden Motive Power Depot, which was opened to the public on May 26, has proved to be a popular attraction. The exhibition has, therefore, been extended to 7 p.m. today (June 4). Admission is 1s. for adults and 6d. for children.

Heavy Bookings for "Starlight Specials."—Bookings for the "Starlight Special" trains, which commenced to run on April 9 and will continue each Friday night until September 24, totalled more than 20,000 by May 28. The heaviest booking is for July 23, when three trains will run from St. Pancras. The "Starlight Specials" run from St. Pancras and Marylebone to Glasgow and Edinburgh.

Eastern Region Whitsun Arrangements.—The Eastern Region is running 313 extra main line trains between June 3 and June 9. Advertised restaurant and buffet car facilities are generally being maintained on the services on which they are normally provided. In addition, some of the additional relief trains are also providing refreshment facilities. The "Harrogate Sunday Pullman" and "Queen of Scots" will not run on Whit Sunday, June 6, and the "Yorkshire Pullman" and the "Tees-Tyne Pullman" will not run on Whit Monday.

Associated Automatic Machine Corporation.—The results of the Associated Automatic Machine Corporation for 1953 show consolidated current assets of £581,740 (£470,195), and liabilities and provisions of £242,258 (£199,911). Revenue reserves and surplus were £159,730. Capital expenditure commitments were £25,007. The company renewed during the year its agreement for vending machine business on British Railways and London Transport stations.

Ransomes & Rapier Exhibits at Olympia.—A comprehensive range of mechanical handling equipment, which will include a Rapier 10 super mobile crane, exhibited for the first time, will be displayed at the forthcoming Mechanical Handling Exhibition at Olympia, by Ransomes & Rapier Limited. The crane is mounted on pneumatic tyres, and has a full circle slewing superstructure, and handles 10-ton loads at 10 ft. radius, giving 5 ft. 6 in. clear outreach, or with a long jib as exhibited, lift 2½ tons 50 ft., at 26 ft. radius.

Recognition of Act of Gallantry in ss. "Princess Victoria."—Mr. T. F. Cameron, Chief Regional Manager, British Railways, Scottish Region, on May 21 handed to Mrs. Broadfoot the Marconi Memorial scroll of honour presented by the Veteran Wireless Operators' Association, New

OFFICIAL NOTICES

The engagement of persons answering Situations Vacant advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

ASSISTANT LOCOMOTIVE ENGINEER required by the Steel Company of Wales Limited, Port Talbot, to assist in supervision of maintenance of an expanding fleet of Diesel Electric Locomotives. Applicants should have a thorough knowledge of Diesel-Electric and steam traction, from standpoint of both major overhauls, running maintenance and servicing, and preferably possess a degree or equivalent qualifications in Mechanical or Electrical Engineering. Those wishing to apply should write for official Application Form to:—The Personnel Superintendent, The Steel Company of Wales Limited, P.O. Box No. 3, Port Talbot, Glam.

THE HIGH COMMISSIONER FOR INDIA invites tenders for the supply of 8 Frames for Engines, "P" class, machined and finished complete with cylinders with all covers, piston valve liners and lagging plates, Front Buffer Beam, all Frame stretchers and stays, Hind Drag Casting, Motion Brackets, Spring Link Carriers, Platform supports and axlebox slides with Wedges and Frame Keeps. Forms of tender may be obtained from the Director General, India Store Department, 32/44 Edgware Road, London, W.2, on or after Friday, June 4, 1954, at a fee of 10s. which is not returnable. Cheques to be made payable to "High Commissioner for India." Tenders are to be delivered by 2 p.m. on Friday, July 2, 1954. Please quote reference No. 305/53.

INTERNATIONAL RAILWAY ASSOCIATIONS. Notes on the work of the various associations concerned with International traffic, principally on the European Continent. 2*s*. By post 2*s*. 2*d*. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

DESIGNERS. Excellent opportunity for first class men. Preference given to applicants with experience in Cars, Commercial Vehicles and Railway Rolling Stock but good general engineering experience acceptable. Essential to have University degree or equivalent engineering qualifications. Good salary, modern offices, staff pension scheme, Birmingham area. Applications to Personnel Manager, Box 241, *The Railway Gazette*, 33 Tothill Street, London, S.W.1.

RAILWAY SIGNALLING—A well known firm of Electrical Signalling Contractors has vacancies for Technical Assistants preferably with Railway experience. Apply in writing stating experience, age and salary required. Box 245, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

BOUND VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 25*s*. per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press, Limited, 33, Tothill Street, London, S.W.1.

York, in recognition of the outstanding service of the late Radio Officer David Broadfoot who was on duty in British Railways ss. *Princess Victoria* when she got into difficulties and foundered off the Irish coast on January 31, 1953. He remained at his post, repeatedly sending signals to enable the ship's position to be plotted until the ship went down, taking him with her. Radio Officer Broadfoot was posthumously awarded the George Cross, which was gazetted on October 6, 1953.

Yorkshire Woollen District Transport Co. Ltd.—Mr. Raymond W. Birch, Chairman of the Yorkshire Woollen District Transport Co. Ltd., presided at the annual general meeting on May 5. He said that early last year new or augmented services were introduced on some routes. Unfortunately these had proved unremunerative; total gross traffic receipts only exceeded those of the previous year by some £3,000, and operating expenditure was disproportionately increased. During the year the company paid £135,000 in respect of fuel tax and road fund licences, apart from the ordinary income tax and profits tax. The staff had continued to practise every possible economy. The revision of timetables on routes showing the poorest results was expected to save over 100,000 miles a year. To ease the difficulty and cost of peak traffic operations, more double-deck vehicles were being introduced. The only fare rise which the company had had was in August, 1951, when the average increase asked in the 30-year-old scales of fares was only some 21 per cent; costs of operation are now 145 per cent more than before the war.

Marcroft Wagons Limited—The annual meeting of Marcroft Wagons Limited was held on May 21 at Sheffield. Major Noel E. Webster, the Chairman, presided. In his circulated statement Major Webster said that close attention to detail and improvements in organisation, combined with an extension of activities had been successful in maintaining the net profit for the year. Investments in the associated company, Lombard Marcroft Limited, had brought about results as expected. Sums placed on deposit or loan with that firm were producing an appropriate return in interest. Details of the financial results were given in our issue of May 7.

R. & W. Hawthorn Leslie & Co. Ltd.: Scrip Issue.—Consent has been given by the Capital Issues Committee to the issue by R. & W. Hawthorn Leslie & Co. Ltd. of 358,275 5 per cent cumulative preference £1 shares and 895,687 ordinary 10*s*. shares. These shares will be by way of capitalisation of reserves. Issues will be made in the proportion of one preference for every five ordinary 10*s*. units held and one ordinary 10*s*. share for every two ordinary 10*s*. units held by ordinary holders registered on June 30. The new preference shares will rank equally with existing preference from July 1, and the rate of dividend to existing preference holders will be increased from 4 to 5 per cent. A final ordinary dividend of 11 per cent is anticipated. The directors also propose to form two subsidiaries to take over the operating activities of the shipbuilding yard and engineering works. All of the above arrangements are subject to the sanction of stockholders at the necessary meetings, which will be called in the near future.

Superheater Co. Ltd. Dividend.—The directors of the Superheater Co. Ltd. announce that the usual half-yearly dividend on the 5½ per cent preference stock will be paid on June 30. Transfers must be registered by close of business on June 15. Warrants will be posted on June 29.

Railway Benevolent Institution.—The annual meeting of members of the Railway Benevolent Institution will be held at Euston Station on June 25 at 4 p.m., to receive the report of the Board of Management and to transact the ordinary business of the Institution.

Metrovick Contract for C.I.E. Diesels.—The photograph reproduced on page 615 of our May 28 issue, showing the signing of the £4,750,000 contract for the supply by the Metropolitan-Vickers Electrical Co. Ltd. of diesel locomotives to Coras Iompair Eireann, was supplied by the *Irish Press*.

Powell Duffryn Limited Dividend.—A dividend of 2⅜ per cent less tax, on the £3,600,000 4¼ per cent cumulative preference stock for the six months ending June 30, 1954, is announced by Powell Duffryn Limited. Payment will be made on July 1 to holders registered at close of business on June 1.

Institute of Transport Visit to Paris.—The accompanying illustration shows members of the Institute of Transport party outside Dijon Station during the recent visit to the electrical control room and C.T.C. installation. Included in the group are:—

Messrs. R. I. D. Arthurton, Principal Executive Assistant, Department of the Chief Mechanical Engineer (Railways), London Transport; G. S. Bosquet, former Traffic Manager, Eastern Bengal Railway; D. J. A. Davies, Managing Director, Weymann's Limited; Sl. Dudman, Transport Manager, Balfour Beatty & Co. Ltd.; and E. W. Rumble, Transport Manager, Siemens Bros. & Co. Ltd.

Brazil Railway Company.—Report of the joint committee of bondholders for 1953 states that negotiations carried on by Port of Para and Estrada de Ferro Sao Paulo Rio Grande to obtain payment of com-

Photo] [*A. Earle Edwards*

Members of the Institute of Transport party outside Dijon Station

pensations for expropriation of their properties still continue. As indicated in an announcement issued January 24, 1953, by the French Ministry of Finance, it was hoped that the delegation which had returned to Rio de Janeiro would be in a position to submit a report to the Brazilian Government which would pave the way for a definite and equitable settlement of outstanding claims. Negotiations have been resumed with support of the French Government on behalf of companies concerned. A proposal for settlement by arbitration is now under consideration. The Brazilian Government has not repaid to the Brazil Railway Company and one of its subsidiaries Cr.$5,683,245 (plus interest), representing cash at banks wrongly seized in 1940 as well as dividends encashed on shares of Paulista de Estradas de Ferro and of Mogiana de Estradas de Ferro Companies, which shares were also seized in 1940 and subsequently restored. Negotiations are being continued to obtain payment of this debt, which is recognised by the Government.

The Manila Railway Co. (1906) Ltd.—The proceeds of the sale of $13,236,000 refunding mortgage bonds of the Manila Railroad Company of the Philippines have been received in New York. To expedite the distribution of the funds (less expenses) to the holders of the "A" and "B" debenture stocks and bonds and to the preference and ordinary stockholders of the company, it is the intention of the Board forthwith to convene an extraordinary general meeting of the members of the Manila Railway Co. (1906) Ltd., at which a resolution will be proposed for placing the company in members voluntary liquidation.

Trent Motor Traction Co. Ltd.—At the annual general meeting of Trent Motor Traction Co. Ltd., on May 11, Mr. J. W. Womar, Chairman, presided. He said that the increase in receipts for the year ended December 31, 1953, was mainly the result of the increased fare rates introduced in April, 1952, and March, 1953. Strenuous efforts to effect economies in operating costs were more than nullified by another general wage increase, which in a full year would cost the company £45,000. Twenty-one new vehicles were brought into service and a corresponding number of older vehicles was withdrawn. Throughout the year there was a serious shortage of staff, particularly of drivers and conductors.

Pullman Car Company Tax Case.—An appeal by the Crown against a decision of the Special Commissioners of Income Tax was dismissed by Mr. Justice Harman in the Chancery Division on May 26. The Commissioners had decided that the Pullman Car Company, in computing its profits tax liability, was entitled to deduct sums paid to holders of its income stock, in respect of the 1948-49 financial year. These sums were described as "interest" by the company. The 5 per cent cumulative income stock was created as a result of a scheme for reducing the company's capital sanctioned in 1938. Interest on the income stock was to be paid only according to the extent of the net profits available and was to be cumulative. Full interest was paid to March 1939 and then fell into arrears. Payments in 1947 and 1948, and a final payment on December 31, 1948, brought payments up to date and the stock had been redeemed by that date. The payments in 1948 were the subject of the dispute, the company claiming that these were in law payments from profits within the meaning of schedule 4, para. 4, Finance Act, 1937. The Judge held that the holder of such stock was, in fact and in law, in the position of a debenture holder, whereas the Crown case was that because the interest was contingent on sufficient profits being earned it was in the nature of a dividend or distribution. He held that the payments were interest on money lent to the company, and not a distribution of profits.

Taltal Railway Co. Ltd.—Income of the Taltal Railway Co. Ltd. for the year to June 30, 1953, was £96,906 (£93,165 at $310). The loss after expenses, tax, etc., was £17,841 (loss £8,762). The debit balance forward is £144,285 (£126,474). Current assets in London are £218,958 (£217,398), in Chile £44,954 (£60,333). Current liabilities total £161,824 (£157,138), including overdraft £8,657 (nil). The increase in tariffs of 36 per cent from May 4, 1953, brought but little benefit to 1952-53 results. This increase was insufficient to meet rising costs. After negotiation a 50 per cent tariff increase was obtained in January, 1954. This tariff falls in 1953-54 and does not affect 1952-53 accounts. Subsequent 40 per cent increase in wages and 88 per cent increase in cost of oil fuel, show the insufficiency of the tariff advance coupled with transportation decrease. Mr. Matthews (a director) visited Chile this April, and conferred with Mr. Irvine and company's representatives there. The result, the report states, can now only be awaited.

Forthcoming Meetings

June 9 (*Wed.*) to June 19 (*Sat.*).—Mechanical Handling Exhibition, at Olympia, London.

June 11 (*Fri.*).—Railway Club, at 82, Fetter Lane, E.C.4, at 7 p.m. Paper entitled "The Talyllyn Railway," by Mr. T. W. Robertson.

Until September 25 (*Sat.*).—"Popular Carriage" Exhibition (Two centuries of carriage design for road and rail) in the Shareholders' Meeting Room, Euston Station, London, N.W.1. Weekdays 10 a.m. to 7 p.m.; Sundays 2 to 7 p.m.

Railway Stock Market

Much business has been passing in stock markets, and many leading industrial shares again moved higher, although best levels were not fully held. News of further dividend increases and share bonuses helped sentiment. British Funds were assisted by the view that the big cash and conversion issue of 2 per cent Conversion stock shows that the bank rate is expected to remain around its current level of 3 per cent for some while. Yield on many shares is now moderate, but the general assumption is that the higher dividends announced this year are likely to be maintained. Moreover, it is also being suggested that further increases are not improbable next year now that E.P.L. has ended. Confident views prevail in the City, where it is argued that markets may very well show a further general advance over the next few months, assuming that international political news is satisfactory. Markets are short of stock, as investors generally are not selling despite the big gains in recent months.

There was again not much business passing in foreign rails, but buyers were about for Antofagasta preference stock which was firm at 42 with the ordinary stock at 8⅝.

Manila Railway stocks were steady with the "A" and "B" debentures at 144 and 137 respectively, while the preference shares were 19s. 1½d. and the 1s. ordinary shares 8s. 9d.

United of Havana second income stock remained at 43 and the consolidated stock at 6⅝.

Canadian Pacifics strengthened to $43½, while the 4 per cent preference stock was £66½ and the 4 per cent debentures £89xd. White Pass no par value shares have been a little firmer at $26¼.

Dorada Railway ordinary stock changed hands around 73, and there was a fair amount of activity up to 27¼ in Chilian Northern 5 per cent first debentures. Costa Rica 6½ per cent first debentures have changed hands at 62½ and International of Central America no par value shares, which rarely change hands, have marked $8¼. Nitrate Rails shares transferred at 20s. 9d. and Taltal shares at 13s. 10½d.

San Paulo units were 3s. 4½d., while Brazil Railway bonds have been dealt in up to the higher level of 8¼. Guayaquil & Quito 5 per cent bonds were 51. Nyasaland Railways 3½ per cent debentures have marked 79½ and the shares just over 4s.

Emu Bay 5 per cent debentures changed hands at 33, Midland of Western Australia ordinary stock was 22½ and the 4 per cent debentures dealt in at 42.

Road transport shares have been firm generally with B.E.T. 5s. "A" deferred units more active around 45s. 9d. in response to continued market expectations of a higher dividend. Southdown showed firmness at 31s. with West Riding at 32s. 3d. and Lancashire Transport 52s. 6d.

Engineering and kindred shares became more active, but best prices were not always held. Considerable interest has been shown in the announcement that the next of the big public issues of de-nationalized steel shares is planned for this month; it will be the 10,000,000 ordinary shares of Stewarts and Lloyds. The price of issue has not yet been fixed but the general belief is that it will be around 35s. 6d. Stewarts and Lloyds has an exceptionally strong financial position and earnings record, so the shares will be offered at a price giving a somewhat smaller yield than the other steel shares issues made this year. A dividend of 12½ per cent is forecast, and it will be shown that this is covered over three times. The market view is that every effort will be made to ensure success for the Stewarts and Lloyds issue and a moderate premium may very well be expected when dealings start. Unless this important issue goes well, the outlook for the many other steel issues that have to be made may not be very bright.

Vickers have been in increased demand again, and rose to 63s. 6d., but Guest Keen at 57s. 9d. have not held all an earlier rise. Ruston & Hornsby strengthened to 52s. and Tube Investments to 67s.

Among shares of locomotive builders and engineers, Beyer Peacock were 39s. 6d., and Charles Roberts 5s. shares 9s. 7½d. Birmingham Carriage moved higher at 26s. 9d., Hurst Nelson were 42s. and North British Locomotive 15s. 7½d., Vulcan Foundry were 24s. 3d., Gloucester Wagon 10s. shares 17s. 6d. and Wagon Repairs 5s. shares 13s. 4½d.